

**IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
TEXARKANA DIVISION**

LG ELECTRONICS, INC.,

Plaintiff,

v.

HITACHI, LTD., et al.,

Defendants.

Civil Case No. 5:07cv90-DF

OPENING CLAIM CONSTRUCTION BRIEF OF LG ELECTRONICS, INC.

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INTRODUCTION

LGE is widely recognized as being one of the world's leaders in the design, development manufacture, and sale of consumer products including personal computers, mobile telephone handsets, DVD recorders and players, plasma display televisions, and numerous other electronic and household products. LGE's extensive research and development efforts has led to the award of many thousands of patents covering LGE's innovations. LGE has accused Defendants of infringing four LGE patents directed to LGE's innovative technology:

1. U.S. Patent No. 6,404,418 entitled "Method For Displaying Selectable Keys In An Optical Disc Reproducing System and An Apparatus Thereof" ("the '418 patent") – claims 5, 6, & 7 (Exhibit 1);
2. U.S. Patent No. 7,158,456 entitled "Optical Disc Player and Method For Reproducing Thereof" ("the '456 patent") – claims 17, 22 & 27 (Exhibit 2);
3. U.S. Patent No. 6,721,709 entitled "Digital Data Player, and Data Processing Method and Data Storage Medium for the Same" ("the '709 patent") – claims 1, 2 & 3 (Exhibit 3); and
4. U.S. Patent No. 5,790,096 entitled "Automated Flat Panel Display Control System for Accomodating Broad Range of Video Types and Formats" ("the '096 patent") – claim 21 (Exhibit 4).

The patents generally relate to improvements in the processing and display of digital data in electronic devices as well as enhancements in user interfaces for such devices. Defendants, a group of related companies under the Hitachi corporate umbrella, have used and implemented LGE's patented technology in their in-car audio/visual products including car radio and navigation products. While LGE has asserted infringement of numerous claims from the four patents, there are only 10 claims at issue in this *Markman* process.

LGE's proposed constructions are grounded in the language of the claims and the definitional guidance provided by the specification. Defendants, on the other hand, engage in a result-oriented analysis guided only by the accused products (when seeking to unduly narrow

claim terms to avoid infringement) or prior art (when seeking to expand the claims to bolster an invalidity challenge). The Court should follow the well-entrenched axioms of claim construction and adopt the constructions urged by LGE.

GOVERNING LEGAL STANDARDS

This Court understands well the standards governing the claim construction process. The Court must first consider the words of the claims themselves, giving those words their ordinary and customary meaning to a person of ordinary skill in the art in question at the time of the invention, *i.e.*, as of the effective filing date of the patent application. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312-13 (Fed. Cir. 2005) (*en banc*). While the words of a patent claim “are generally given their ordinary and customary meaning,” *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996), the ordinary meaning of a term must not be determined in a vacuum; rather, the court must ascertain the ordinary meaning “in the context of the written description and the prosecution history.” *Medrad, Inc. v. MRI Devices Corp.*, 401 F.3d 1313, 1319 (Fed. Cir. 2005) (quoting *DeMarini Sports, Inc. v. Worth, Inc.*, 239 F.3d 1314, 1324 (Fed. Cir. 2001)).

The specification “is always highly relevant to the claim construction analysis. Usually, it is dispositive; it is the single best guide to the meaning of a disputed term.” *Phillips*, 415 F.3d at 1315 (quoting *Vitronics*, 90 F.3d at 1582). A court must particularly look to the specification to ascertain the meaning of a claim term that is not a “term of art.” *See Honeywell Int’l v. Universal Avionics Sys., Corp.*, 488 F.3d 982, 990 (Fed. Cir. 2007). However, although it is “entirely appropriate for a court ... to rely heavily on the written description for guidance as to the meaning of the claims,” characteristics of preferred embodiments should not become part of the claims as extraneous limitations. *Phillips*, 415 F.3d at 1316-17, 1323. After the specification, the next most relevant source is “the prosecution history, which is also part of the

‘intrinsic evidence’ that directly reflects how the patentee has characterized the invention.”

MBO Labs., Inc. v. Becton, Dickinson & Co., 474 F.3d 1323, 1329 (Fed. Cir. 2007) (citing *Phillips*, 415 F.3d at 1317).

The Court may also consider “trustworthy” extrinsic evidence to ensure that its claim construction is not inconsistent with “clearly expressed, plainly apposite, and widely held understandings in the pertinent technical field.” *Pitney Bowes, Inc. v. Hewlett-Packard Co.*, 182 F.3d 1298, 1309 (Fed. Cir. 1999). This is especially so for technical terms. *Id.* Such extrinsic evidence may take the form of expert testimony, dictionaries, technical treatises, and articles. *Vitronics*, 90 F.3d at 1584. Courts may not, however, rely on extrinsic evidence to contradict or vary the meaning of claims provided by the intrinsic evidence. *Phillips*, 415 F.3d at 1318.

LGE’S CONSTRUCTION OF THE DISPUTED CLAIM TERMS

LGE’s construction of each of the disputed terms from the four patents is provided below.¹

I. U.S. PATENT NO. 6,404,418

A. Overview of the ’418 Patent

The ’418 patent discloses and claims a system and method for enhancing the user interface for electronic devices by identifying and visually distinguishing an “enabled selectable key” from a “non-enabled selectable key” on a display, such as on the LCD touch screen, when prompted by a user. In this way, the innovative solution highlights for the user the “keys” of an interface that are appropriate for a particular function of the device thereby making manipulation and selection of device functions easier and more efficient for a user.

¹ In some instances, LGE also addresses the impropriety of Defendants’ construction. However, in many cases, Defendants’ constructions are unclear and the precise scope of the proposed language vague. LGE reserves the right to further address Defendants’ constructions once Defendants provide more thorough explanations of their constructions and supporting evidence. In addition, in some cases, as noted below, the differences between the constructions do not appear on their face to be significant; once further clarity is established, LGE will continue to work with Defendants’ in an attempt to narrow the issues for the Court.

By way of background, as the technology included in electronic devices has become more advanced, the capability of such devices to provide more data and to simultaneously support different functions likewise has increased. As users guide these devices through their different operational states, different input keys on the device are enabled and disabled based on the respective state under which the device is operating.

If the user inadvertently presses a key that is not enabled, the user may receive an error message from the device but the user may not understand the underlying reason for the error, which may lead to user frustration or mistaken conclusions that the device is broken. Col. 1:40-54. However, by visually distinguishing the enabled and non-enabled selectable keys in response to a request by the user, the device quickly and simply indicates to the user which keys are operational under the device's current state of operation. Through such visual information, the user easily learns which keys the user can press to further operate the device and which keys, when pressed by the user, will be ignored by the device. This information allows the user to operate the device more effectively while reducing user frustration and continued user error. *Id.*

In one embodiment, when the user wishes to identify the enabled selectable keys from the non-enabled selectable keys, the user prompts the device by pressing another key that acts as a request for such identification. Col. 8:48-53. The device responds to this "request for identification" by visually distinguishing the enabled selectable keys from the non-enabled selectable keys on the screen of the device. The selectable keys can be displayed on the screen in a number of ways, but the '418 patent specifically explains that the enabled and non-enabled selectable keys can be visually distinguished from each other on a "soft" keyboard that is presented on a display screen. Col. 12:67- 13:3. Figure 13C illustrates this concept.

In this example, the “soft” keyboard is composed of keys (which are shown as the smallest rectangles in Fig. 13C), and the shaded keys “S” represent the letters in the “soft” keyboard that are enabled (*i.e.*, able to be pressed and entered by the user) while the non-shaded keys represent the letters that are non-enabled (*i.e.*, able to be pressed, not entered by the user).

B. '418 Disputed Claim Terms

LGE alleges that Defendants infringe Claims 5, 6, and 9 of the '418 patent (reproduced below with disputed claim language in bold):

5. An apparatus for identifying at least one enabled selectable key, comprising:
 an interface unit to receive an input;
 a control unit to determine if an input corresponds to a **request for identification of said at least one enabled selectable key** and to identify said at least one enabled selectable key in response to said request for identification; and
 a **selection display unit to visually discriminate said at least one enabled key from a non-enabled selectable key under control of said control unit, which controls said selection display unit based on said identification and in response to said request for identification.**

6. The apparatus of claim 5, wherein, in performing said identification, said controller reads an **offset information** from a **disc** and identifies said at least one enabled selectable key based on said offset information.

9. A method to identify at least one enabled selectable key, comprising:
 determining if an input corresponds to a **request for identification of said at least one enabled selectable key**;
 identifying said at least one enabled selectable key in response to said **request for identification of said at least one enabled selectable key**; and
visually discriminating said at least one enabled key from a non-enabled selectable key based on said identification and in response to said request for identification.

The parties dispute the meaning of seven claim terms recited in the three asserted claims of the '418 patent. We discuss each in turn below.

1. Disputed Claim Term #1: “key” (claims 5, 6 & 9)

| LGE's Construction | Hitachi's Construction ² |
|--|--|
| “A physical, hard button or marked physical area on a screen that represents a user action.” | “A physical, hard button on a keyboard.” |

² The source of Hitachi's proposed claim constructions is from the parties' *Jt. Claim Construction Statement* submitted on March 18, 2008.

The term “key” appears throughout claims 5, 6 and 9. It is a straightforward term of common usage and should be construed according to its ordinary meaning as understood in the context of the ’418 patent.³ While the word “key” can include “a physical, hard button” (as both parties indicate), the claim certainly should not be limited to that as urged by Defendants.

As always, one must start with the language of the claims. The word “key” is not limited to a “hard button” and no other language in the claims remotely suggests such a restriction on the meaning. The word “key” as used in the claim has a broader connotation (consistent with its ordinary meaning), and the language should be construed to include a marked area on the screen that represents a user action.

The specification wholly supports LGE’s construction. For example, the patent states that “*key(s) may be visually identified using...display techniques such as on-screen displaying (OSD).*” Col. 3:33-36 (emphasis added). When implementing such an OSD, “a *keyboard arrangement* that visually discriminates between enabled selectable keys and non-enabled selectable keys *may be displayed.*” Col. 3:36-38 (emphasis added). Indeed, the specification explains “[a] separate memory may be further provided for selectively *displaying* only the enabled selectable keys when *displaying the entire key arrangement on the screen* according to the present invention.” Col. 8:58-61.

Figure 13C illustrates the concept of “on-screen displaying”:

³ While LGE believes the phrase “enabled selectable key” is more proper for construction and that no specific construction is required for the term “key” alone – the word as written provides a clear and unambiguous recitation of the claimed concept – a dispute nevertheless appears to exist and thus the Court is required to resolve the construction issue. See *O2 Micro Int’l Ltd. v. Beyond Innovation Tech. Co., Ltd.*, 521 F.3d 1351, 1362 (Fed. Cir. 2008).

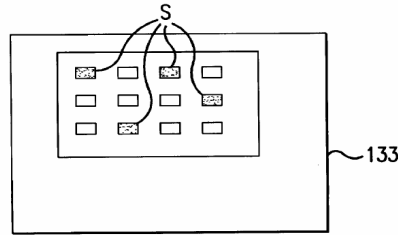


FIG. 13C

The patentees explain that “[i]n FIG. 13C, enabled selectable controls S are visually distinguished from non-enabled selectable controls on a display screen such as an on-screen display (OSD).” Col. 12:55-58. The patentees further elaborate that “as shown in FIG. 13C, *display 133 may show a keyboard arrangement* that visually discriminates among the enabled selectable keys and the non-enabled selectable keys.” Col. 12:67- 13:3 (emphasis added); Col. 12:64-67 (“Other techniques may also be used to distinguish between the enabled selectable keys and the non-enabled selectable keys. For instance, keys may be distinguished auditorially or mechanically.”). The specification clearly applies to “soft” keys on the display, and Defendants’ efforts to preclude that disclosed embodiment by limiting the claim to a “physical, hard button” is contrary to law. *See, e.g., Vitronics*, 90 F.3d at 1583 (explaining that claim constructions that exclude disclosed embodiments are “rarely, if ever, correct.”).

Extrinsic evidence, in the form of dictionary definitions, further supports and reinforces the propriety of LGE’s construction. For example, the Dictionary of Computing, 264 (4th Ed. 1996), defines “key” as follows: “a button *or marked area* that causes a discrete signal or action when pressed with a finger.” *See* Exhibit 5 (emphasis added).

2. Disputed Claim Term #2: “selectable key” (claims 5, 6, & 9)

| LGE’s Construction | Hitachi’s Construction |
|---|---|
| “A [key] ⁴ capable of being pressed by a user to cause the action represented by the button or marked area.” | “A [key] that is capable of being pressed by a user.” |

⁴ In order to make the parties’ constructions consistent in the side-by-side comparison, LGE has inserted the term “[key]” into its proposed construction. The term “[key]” should be read as “physical, hard button or marked

The term “selectable key” also appears throughout all three claims at issue. Consistent with LGE’s construction of the term “key” discussed above, “selectable key” should be construed according to its ordinary meaning as understood in the context of the ’418 patent. As seen above, the parties agree that the term “selectable” means “capable of being pressed by a user.” However, as with the construction of the claim term “key,” the dispute between the parties centers around whether a “selectable key” can also comprise a “*marked physical area on a screen*” as LGE contends in its proposed construction. As detailed above, the ’418 patent specification provides ample support that a “key” may be a “marked physical area on a screen” *See, e.g.,* Col. 3:33-38; Col. 8:58-61; Col. 12:50-Col. 13:3.

The specification also makes clear that the use of a “selectable key” is to cause an action represented by pressing the selected key. For example, the specification explains that the “key input unit 14 is connected to control unit 7 and provides control unit 7 with *a signal corresponding to a user selected key.*” Col. 7:34-36 (emphasis added). Such a reading also comports with the ordinary meaning of the term. For example, on a keyboard (whether physical or “soft”), pressing the “A” key will cause the letter “A” to be entered into the appropriate field of a device using such keys as an input – pressing the “B” key will result in entering the letter “B”, not the letter “A”, into the appropriate field.⁵

3. Disputed Claim Term #3: “request for identification of said at least one enabled selectable key” (claims 5 & 9)

| LGE’s Construction | Hitachi’s Construction |
|--|--|
| “An input, separate from the enabled selectable keys, that allows a user to ask for a first visual identification of at least one enabled selectable key under the current operation of the device.” | “A user input, separate from the enabled selectable keys, that allows a user to request a search to identify those key(s), that (1) can be pressed by a user, and (2) are already active.” |

physical area on a screen” as proposed in Paragraph 1 of this section. Likewise, the Defendants’ construction of the term “[key]” should be read consistent with their proposed construction of “a physical, hard button.”

⁵ Extrinsic evidence further supports LGE’s proposed construction. For example, the American Heritage Dictionary of the English Language (3rd Ed. 1992) defines “selectable” as “able to be chosen from several.” *See* Exhibit 6.

Similar to other claim terms for this patent, the parties were able to reach partial agreement as to the proposed claim construction of this phrase (which appears in both claims 5 & 9). As shown above, the parties agree that the “request for identification” must be “separate from the enabled selectable keys.” However, the claims, specification, and prosecution history of the ’418 patent support LGE’s proposed construction of this phrase and confirm that “an input, separate from the enabled selectable keys, that allows a user to ask for a first visual identification of at least one enabled selectable key under the current operation of the device” is the correct construction.

With respect to the “separate from the enabled selectable keys” language, the specification provides:

Alternatively, *a separate information acquisition key (not shown) may be used to request identification of enabled selectable keys* under the correct state. More specifically, an information acquisition key may be selected by a user to provide a signal with respect to the enabled selectable keys, which signal is supplied to display-unit driving device 22. Such an information acquisition key may be used for identifying the enabled selectable keys when a new menu is to be selected during reproducing disc 1.

Col. 8:47-56 (emphasis added).

The above section of the specification discloses an input separate from the enabled selectable keys (*e.g.*, “a separate information acquisition key”), that allows a user to ask for a first visual identification of at least one enabled selectable key (“signal is supplied to display-unit driving device 22”) under the current operation of the device. Col. 11:33-62.

The plain language of independent claims 5 and 9 of the ’418 patent further require that the request for identification result in a *visual* identification of the enabled selectable keys. For example, claim 5 recites “a selection display unit to *visually discriminate said at least one enabled key* from a non-enabled selectable key...in response to said request for identification.”

Col. 13:48-Col. 14:2 (emphasis added). *See Chimie v. PPG Indus. Inc.*, 402 F.3d 1371, 1377 (Fed. Cir. 2005) (“Claim construction begins with the intrinsic evidence of record, looking first to the claim language itself to define the scope of the patented invention.”). Claim 9 of the ’418 patent also supports this construction by reciting “**visually discriminating said at least one enabled key** from a non-enabled selectable key...in response to said request for identification.” Col. 14:19-21 (emphasis added).

The ’418 patent specification also discloses exemplary conditions or scenarios under which “enabled selectable keys” are identified, and indicates that receiving a user input triggers visual identification of at least one enabled selectable key:

“**Once identified**, the enabled selectable keys may be distinguished from non-enabled selectable keys **visually**, or otherwise. The enabled selectable keys may be identified and/or distinguished in at least three scenarios: . . . (3) when a user input representing an information acquisition key for requesting **identification of enabled selectable keys** is received.”

Col. 2:48-56 (emphasis added).

The prosecution history of the ’418 patent further confirms LGE’s proposed claim construction. *See, e.g., Biodex Corp. v. Loredan Biomedical, Inc.*, 946 F.2d 850, 862-63 (Fed. Cir. 1991). In distinguishing the “Tahara” prior art reference, the applicant argued that identifying an enabled selectable key in response to a request for identification of a selectable key is different than “indicating an enabled key in response to a selectable key input...” ’418 patent File History, Rule 111 Response (Nov. 29, 2000) at 4-5. Applicant argued that Tahara “is silent regarding whether a user can make an inquiry of currently selectable options” and does not “allow a user to make an inquiry of what is selectable.” *Id.*

4. Disputed Claim Term #4: “selection display unit” (claim 5)

| LGE’s Construction | Hitachi’s Construction |
|--|--|
| “A screen on which pressable enabled keys are presented and distinguished visually.” | The Defendants do not believe that this term requires construction. To the extent that the term is |

| | |
|--|--|
| | construed, it should be construed according to its plain meaning as understood in the context of the '418 patent to be "a unit that shows selections." |
|--|--|

The term "selection display unit" only appears in claim 5 of the '418 patent. This term requires construction, in part, as a consequence of Hitachi's impermissibly broad proposed construction of this term and their efforts to impose an overly narrow construction on the claim term "key" (which Hitachi would limit to "a physical, hard button on a keyboard"). It is clear from the '418 patent specification that the patentees distinguish between merely "**visually discriminating** among enabled and disabled keys of respective states" when such keys are knobs or buttons and "**displaying** all keys of the key input unit, where the enabled keys are visually distinguished from the disabled keys on that display through, for example, an overlap process." *Compare* Col. 5:36-44 *with* Col. 5:57-62. In the latter case, the display of enabled and disabled selectable keys must occur on a display screen, such as an LCD. Col. 7:52-55. This construction is consistent with abundant intrinsic evidence limiting the term "display" to display screens located on the device.

For example, as disclosed in the "Summary of the Invention" section of the '418 patent, "[a]nother object of the present invention is to discriminate among **enabled and disabled selectable keys of a key input unit on a screen**, leading a user to recognize the enabled selectable keys under respective states during predetermined portions of the play operation." Col. 2:23-27 (emphasis added). Similarly, "[a]ll or a limited portion of the enabled selectable key(s) may be **visually identified using** illumination of those keys or other display techniques such as **on-screen displaying (OSD)**. For instance, a **keyboard arrangement** that visually discriminates between enabled selectable keys and non-enabled selectable keys **may be displayed.**" Col. 3:33-39 (emphasis added); *see also id.* at Col. 5:57-59 ("One way of [*sic*] to identify enabled selectable keys is to display only enabled selectable keys on an OSD (on screen

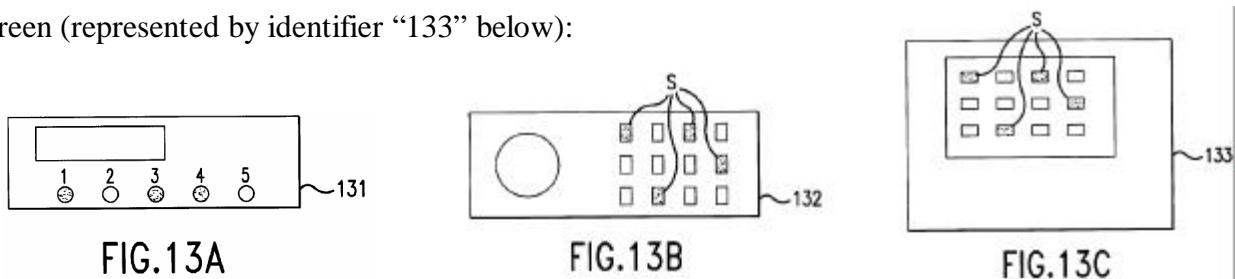
display).”); Col. 8:57-60 (“Control unit 7 has external memory (not shown) for storing the system control data. A separate memory may be further provided for selectively displaying only the enabled selectable keys *when displaying the entire key arrangement on the screen* according to the present invention.”).

The ’418 patent’s figures similarly support LGE’s construction. For example, the patentees explain that

FIGS. 13A-13C demonstrate the *three methods for visually discriminating* between enabled and non-enabled selectable keys mentioned above. In each figure, shaded keys correspond to enabled selectable keys. In FIG. 13A, enabled controls 1, 3 and 4 are visually distinguished from non-enabled controls 2 and 5 on a front panel of player 131. In FIG. 13B, enabled selectable controls S are visually distinguished from non-enabled selectable controls on a control panel of remote controller 132. In FIG. 13C, enabled selectable controls S are *visually distinguished from non-enabled selectable controls on a display screen such as an on-screen display (OSD)*. * * * Also, as shown in FIG. 13C, *display 133 may show a keyboard arrangement* that visually discriminates among the enabled selectable keys and the non-enabled selectable keys.

Col. 12:47-Col. 13:3 (emphasis added).

As seen from the patent specification and Figures 13A-13C, a selection display unit is required only when the enabled selectable keys are to be displayed or “show[n]” on a display screen (represented by identifier “133” below):



This construction is further supported by the plain language of the claims. For example, the other independent apparatus claim – claim 1 – does not include the “selection display unit” limitation to “visually discriminate” among the enabled and non-enabled selectable keys; instead, claim 1 only recites a “control unit” to visually discriminate among the keys. Differences among

claims are a useful guide in understanding the meaning of particular claim terms. *See Laitram Corp. v. Rexnord, Inc.*, 939 F.2d 1533, 1538 (Fed. Cir. 1991).

5. Disputed Claim Term #5: “visually discriminate said at least one enabled key from a non-enabled selectable key . . . based on said identification and in response to said request for identification” (claims 5 & 9)

| LGE’s Construction | Hitachi’s Construction |
|--|---|
| “Visually distinguish at least one enabled selectable key from at least one non-enabled selectable key in response to the request for identification from the user.” | “At the time of the request for identification, the key(s) that are at that time already selectable and enabled, are visually distinguished from the key(s) that are, at that same time, selectable but non-enabled.” |

The phrase “visually discriminate said at least one enabled key from a non-enabled selectable key . . . based on said identification and in response to said request for identification” should be construed based on its common ordinary meaning and as understood in context of the specification of the ’418 patent.⁶ The parties appear to agree that the term “visually discriminate” means “visually distinguish” as it is used in the specification of the ’418 patent. *See* Col. 5:56-62 (“...where the enabled keys are *visually distinguished* from the disabled keys...”)(emphasis added). Defendants stray impermissibly, however, with the rest of their offerings seeking to narrow the language to a particular state of the selectable enabled and non-enabled keys “at the time” the request for identification is made. Nothing in the claim language supports defendants unduly narrow reading.

Moreover, the ’418 patent specification supports the remainder LGE’s construction—not Defendants’ proposed construction—disclosing that “[a]nother object of the present invention is to discriminate among enabled and disabled selectable keys of a key input unit on a screen, leading a user to recognize the enabled selectable keys under respective states during predetermined portions of the play operation.” Col. 2:23-27. Similarly, “[a]ll or a limited

⁶ LGE believes this phrase as written provides a clear and unambiguous recitation of the claimed concept and can itself form the court’s construction.

portion of the enabled selectable key(s) may be visually identified using illumination of those keys or other display techniques such as on-screen displaying (OSD). For instance, a keyboard arrangement that visually discriminates between enabled selectable keys and non-enabled selectable keys may be displayed.” Col. 3:33-39; *see also* Col. 5:57-59 (“One way of [*sic*] to identify enabled selectable keys is to display only enabled selectable keys on an OSD (on screen display).”).

The specification further illustrates this concept in Figures 13A, 13B and 13C (reproduced above). It explains that “three methods for visually discriminating between enabled and non-enabled selectable keys” are disclosed in Figures 13A-13C. Col. 12:47-49. They note that “[i]n each figure, shaded keys correspond to enabled selectable keys.” Col. 12:49-50. In further describing Figures 13A through 13C, the specification provides:

In FIG. 13A, enabled controls 1, 3 and 4 are ***visually distinguished*** from non-enabled controls 2 and 5 on a front panel of player 131. In FIG. 13B, enabled selectable controls S are ***visually distinguished*** from non-enabled selectable controls on a control panel of remote controller 132. In FIG. 13C, enabled selectable controls S are ***visually distinguished*** from non-enabled selectable controls on a display screen such as an on-screen display (OSD).

Col. 12:50-58 (emphasis added).

Entirely consistent with LGE’s construction of the term “request for identification of said at least one enabled selectable key” above, this “visual discrimination” is based on and in response to the “request for identification”. For example, the specification discloses:

“Once identified, the enabled selectable keys may be distinguished from non-enabled selectable keys ***visually,*** or otherwise. The enabled selectable keys may be identified and/or distinguished in at least three scenarios: . . . (3) when a user input representing an information acquisition key for requesting ***identification of enabled selectable keys*** is received.”

Col. 2:48-56 (emphasis added).

While the claim language and the specification provide conclusive analysis for this construction, extrinsic evidence is further compelling. In particular, consistent with its common ordinary meaning and the intrinsic evidence, the *American Heritage Dictionary* (3d ed. 1992) defines “discriminate” as: “To make a clear distinction; distinguish.” *See* Exhibit 6.

6. Disputed Claim Term #6: “offset information” (claim 6)

| LGE’s Construction | Hitachi’s Construction |
|---|--|
| “A value or index identifying the position in a memory or other predetermined information area of data used to identify all available selectable keys under current operation of the device.” | “Any indication, index, or value that indicates a position or status.” |

When the specification reveals a definition of a claim term given by the patentee, the inventor’s lexicography governs. *See, e.g., CCS Fitness, Inc. v. Brunswick Corp.*, 288 F.3d 1359, 1366 (Fed. Cir. 2002). LGE’s proposed construction is based on the inventor’s lexicography in the specification of the ’418 patent. As explained in the patent, “[t]he offset information used to determine whether an enabled selectable key has been input may include offset address information or offset flag information,” Col. 3:41-43, and “enabled selectable keys for each respective state may be determined based on the presence or absence of offset values with respect to the selectable keys during the play or menu selection for play-back control.” Col. 4:37-41. The specification also indicated that the “offset information” may be represented by “offset values.” Col. 4:67-Col. 5:1. Elaborating further, the patent explains:

The address offset values indicate target for movement (jumps) relative to the current state in accordance with corresponding functions (e.g., previous screen, next screen, rewind or respective numeral keys) of respective keys. For example, if the "previous menu" key is an enabled selectable key in the current state, the "previous menu" key has the **address offset value of a predetermined data area** corresponding to the previous picture which precedes the current state.

Col. 4:46-54 (emphasis added).

As seen above, the specification's disclosure of "address information" or "offset flag information" is a clear indication that "offset information" relates to a position in a memory or other predetermined data area that is used to identify the enabled selectable keys under current operation of the device. This construction is used consistently throughout the patent specification. *See, e.g.*, Col. 4:52-53 ("the address offset value of a predetermined data area"); Col. 7:39-40 ("offset value stored in the predetermined information area of the memory"); Col. 8:38 ("offset information stored in of [sic] the memory"); Col. 9:22-27 ("control unit 7 reads out the offset information stored in its memory, searches to determine which selectable keys are enabled in the currently-played mode, and provides the control signal to display-unit driving device 16 based on that determination."); Col. 11:56-59 ("In step 505, control unit 7 searches for enabled selectable keys using the offset information stored in the memory, and provides a signal based on the enabled selectable keys to display-unit driving device 16.").

Differences among claims are also a useful guide in understanding the meaning of particular claim terms. *See Laitram*, 939 F.2d at 1538. For example, the presence of a dependent claim that adds a particular limitation gives rise to a presumption that the limitation in question is not present in the independent claim. *See Liebel-Flarsheim Co. v. Medrad, Inc.*, 358 F.3d 898, 910 (Fed. Cir. 2004). Claims 6, 7 and 8 all reinforce LGE's construction:

6. The apparatus of claim 5, wherein, in performing said identification, said controller reads an offset information from a disc and identifies said at least one enabled selectable key based on said offset information.

7. The apparatus of claim 6, wherein said offset information includes an offset address.

8. The apparatus of claim 6, wherein said offset information includes an offset flag.

Col. 14:3-9.

These dependent claims demonstrate that the “offset information,” because it includes an “offset address” and an “offset flag,” must be an index or value identifying a position in memory or in another predetermined information area. As noted above, the specification of the ’418 patent describes “offset address” in terms of “*a predetermined data area*” in memory. Col. 4:50-54 (emphasis added). The specification also explains that with respect to “offset flag,” “the offset information for respective keys under each state for the entire disc are recorded *on predetermined information area* 32. Based on this offset information, the *currently-enabled selectable keys can be recognized under each respective state.*” Col. 5:3-8 (emphasis added).

7. Disputed Claim Term #7: “disc” (claim 6)

| LGE’s Construction | Hitachi’s Construction |
|---|--|
| “A medium to store information used in computers and electronic devices.” | “Optical disc including CD, VCD, and DVD.” |

The term “disc” appears in dependent claim 6 of the ’418 patent. In particular, claim 6 recites “said controller reads an offset information from a disc.” Col. 14:4-5. The intrinsic evidence regarding the ’418 patent supports LGE’s proposed construction that “disc” simply means “a medium to store information used in computers and electronic devices” and is contrary to Defendants’ attempts to limit this term to one specific embodiment of the invention.

At the outset, the patent instructs that “[a]n object of the present invention is to provide a disc reproducing apparatus capable of performing interactive playback control.” Col. 1:64-66; *see also* Col. 2:4-6 (disclosing “another object...is to provide a disc reproducing apparatus capable of performing interactive playback control...”). In further describing the invention, the specification explains:

[T]he present invention includes methods and apparatuses that use *offset information stored with respect to selectable keys* to identify the selectable keys that are enabled during respective states of a playback operation. Once identified, the enabled selectable keys may be distinguished from non-enabled selectable keys visually, or otherwise.

Col. 2:44-50 (emphasis added).

The specification does not limit the storage medium as urged by Defendants, and one skilled in the art would interpret this disclosure to mean that the '418 patent invention is directed to any type of "disc reproducing apparatus," and is not limited to any specific type of storage medium or format.

Insofar as the '418 patent provides examples of disc drive formats (such as those for VCD or DVD), these clearly are *preferred embodiments* and are not intended to limit the scope of the '418 patent. For example, in the "Summary of the Invention" section, the '418 patent states: "the method and apparatus of *a first embodiment* of the present invention reads offset information corresponding to selectable keys from a disc (*e.g.*, DVD)...." Col. 2:57-60 (emphasis added). Similarly, under the heading "Detailed Description of the Preferred Embodiments," the '418 patent states: "*The aforementioned objects are preferably achieved in a disc reproducing apparatus* capable of performing interactive playback control via a two step process," Col. 4:26-28 (emphasis added), and only proceeds to describe the invention in the context of an "optical disc reproducing system" when describing a preferred embodiment. *See, e.g.*, Col. 7:16-20 ("The *preferred embodiment* of the present invention will now be described in more detail with reference to the accompanying drawings. FIG. 4 is a block diagram showing an optical disc reproducing system according to the present invention.") (emphasis added). *See, e.g., Inpro II Licensing, S.A.R.L., v. T-Mobile USA, Inc.*, 450 F.3d 1350, 1355 (Fed. Cir. 2006) ("claims need not be limited to the preferred embodiment when the invention is more broadly described").

LGE's proposed construction of "disc" is supported further by the plain language of the claims themselves. Neither independent claims 5 nor 9 limit the invention to an "optical disc

reproducing system.” Instead, claim 5 recites an “apparatus for identifying at least one enabled selectable key,” Col. 13:40-41, and claim 9 recites a “method to identify at least one enabled selectable key.” Col. 14:10. Likewise, claim 6 of the ’418 patent, which includes the claim term “disc,” merely recites “said controller reads an offset information from *a disc* and identifies...,” Col. 14:4-5 (emphasis added) – the claim does not contain the more limiting phrase “optical disc” as one would expect from the Defendants’ proposed construction of the term.⁷

II. U.S. PATENT NO. 7,158,456

A. Overview of the ’456 Patent

Even the most casual observer of technological advances has noticed the proliferation of digital audio such as, for example, digital music files, or other types of digital data used and reproduced with appropriate digital device players. This phenomenon is due, in part, to the developed of audio compression, which allows for the reduction in the amount of data required to represent an audio recording, yet still sound like a faithful reproduction of the original uncompressed audio to most listeners. With the proliferation of digital audio capabilities in consumer electronics, many different digital audio formats have been developed and all are widely used across the industry, which can complicate the devices that need to accommodate the diverse formats.

The ’456 patent discloses and claims methods and devices that are capable of distinguishing between at least two different types of audio files and, once that distinction is made, reproducing the particular audio file. For example, a user may have a disc containing

⁷ In addition, one skilled in the art reading the ’418 patent would recognize that the preferred embodiments described (including references to an optical disc format) were not intended to be limiting and that inconsequential variations from the disclosed preferred embodiments were not to detract from the scope of the invention, to wit: “While the present invention has been particularly shown and described with reference to particular embodiment [sic] thereof, it will be understood by those skilled in the art that various changes in form and details may be effected therein without departing from the spirit and scope of the invention as defined by the appended claims.” Col. 13:15-20 (emphasis added).

music having an MP3 format and when the disc is inserted, the '456 media player discerns the format of the audio information and, if necessary, adjusts the system mode so that the audio file (in this case an MP3 file) can be played. If a different type of audio file is recorded onto the disc (for example a WAV file) the system will recognize a different audio format and will change the mode of reproduction to accommodate this different audio format. In this manner, the system can play a disc containing multiple audio file formats by changing the mode of reproduction accordingly. Beyond that, as described in the '456 patent, in the event that erroneous information is provided to the player from the file source (if, for example, a WAV file is erroneously indicated as an MP3 file), the system will undergo further inquiry regarding the nature of the audio file. Col. 4:32-39.

An example of the invention is described with reference to Figure 2. At step 201, a disc 101 is inserted into the device. Col. 4:4-6. At step 202, "attributive information" is retrieved from the inserted disc 101 to determine the format of the audio data contained thereon. This "attribute information" is any information sufficient to differentiate between different types of audio information. *See, e.g.*, Col. 4:10-13; 12:28-30. At step 203, the system uses this "attribute information" to identify the particular type of audio information, *e.g.*, either "MP3" or "WAV". Once the system has established the type of audio information present on the disc, it reproduces the audio file according to that established mode. Col. 4:28-32. Other features of the invention are further described below.

B. '456 Disputed Claim Terms

LGE asserts independent claim 17 and dependent claims 22 and 27 (which depend from independent claim 20, an asserted, but non-selected claim). These claims are reproduced below with the disputed terms in bold:

17. A method of reproducing audio data, the method comprising the steps of:

- (a) reading an **attribute information** associated with an **audio file** and discriminating a type of the **audio file** using the **attribute information**, wherein the **attribute information includes an extension of the audio file**; and
- (b) **establishing a reproducing mode in response to the type of the audio file as a result of the step (b) [sic]**, and reproducing the **audio file** according to the **reproducing mode**,
wherein if an **extension of the audio file** is “mp3” as a result of the step (a), further comprising the steps of:
- (c1) obtaining a **header information** of the **audio file**; and
- (c2) deciding whether the **audio file constructs normal MP3 audio data** or not, based on the obtained header information.

20. An apparatus for an **audio file**, comprising:

- a reader configured to read an **extension information** of the **audio file**, the **extension information** of the **audio file** being separated from but associated with audio data of the **audio file**;
- a first controller for **establishing a reproducing mode** for reproducing the audio file based on the **extension information**
- a detector configured to detect at least a part of the **audio file** under the established **reproducing mode**; and
- a second controller configured to check whether the obtained part of the **audio file constructs a normal MP3 format stream** corresponding to the established **reproducing mode**.

22. The apparatus of claim 20, wherein the first controller automatically changes the **reproducing mode** if the **audio file is not available under the established reproducing mode**.

27. The apparatus of claim 20, further comprising a display for displaying information including at least title information of a currently reproduced audio file.

The parties dispute the meaning of eight claim terms recited in the four claims of the '456 patent, which we address next.

1. Disputed Claim Term #1: “attribute information” (claim 17)

| LGE's Construction | Hitachi's Construction |
|---|---|
| “Information (for example extension information) sufficient to differentiate between different types of audio information.” | “This term refers to the characters at the end of the file name after the period, which identify the type of file.” |

The starting point for any claim construction analysis, of course, is the language of the claims themselves. *Phillips*, 415 F.3d at 1314 (“the claims themselves provide substantial guidance as to the meaning of particular claim terms.”). The relevant claim language recites:

“reading an *attribute information* associated with an audio file and *discriminating a type of the audio file using the attribute information* wherein the attribute information *includes an extension* of the audio file.” Col. 12:28-31 (emphasis added). The specification consistently defines “attribute information” in accordance with LGE’s construction—it is replete with examples of using attribute information to differentiate between different types of audio information. *See, e.g.*, Col. 1:59-62; Col. 4:10-32, 50-61; Col. 5:53-59; Col. 7:47-65; Col. 10:28-34. In a preferred embodiment, the system uses the extension information of the audio file to differentiate between different types of audio information. Col. 5:53-59. However, a preferred embodiment does not limit the system to the use of extension information *alone* as the language of the claim makes clear. Although it is “entirely appropriate for a court ... to rely heavily on the written description for guidance as to the meaning of the claims,” characteristics of preferred embodiments should not become part of the claims as extraneous limitations. *See Phillips*, 415 F.3d at 1316-17, 1323; *see also E.I. du Pont de Nemours & Co. v. Phillips Petroleum Co.*, 849 F.2d 1430, 1433 (Fed.Cir.1988) (finding it improper to impose “a limitation read into a claim from the specification wholly apart from any need to interpret what the patentee meant by particular words or phrases in the claim”). Thus, although “extension information” is an example of “attribute information,” this is merely one exemplary way in which different types of audio information may be discerned.

Other claims of the patent in question, both asserted and unasserted, can also be valuable sources of enlightenment as to the meaning of a claim term. *Vitronics*, 90 F.3d at 1582. Claim 1 of the ’456 patent recites “reading an extension information,” rather than reciting the broader term “reading an attribute information” recited in claim 17. Col. 11:29-30. If the invention recited in claim 17 was intended to be limited to only “extension information,” the claim would

have used the same language as claim 1 rather than the broader term “attribute information.” *See, e.g., CAE Screenplates, Inc. v. Heinrich Fieldler GmbH & Co.*, 224 F.3d 1308, 1317 (Fed. Cir. 2000) (“In the absence of any evidence to the contrary, we must presume that the use of [] different terms in the claims connotes different meanings.”).

Defendants ask the Court to construe the terms “attribute information” and “extension information” synonymously, both meaning: “characters at the end of the file name after the period, which identify the type of file.” (*See* Defendants’ proposed construction of “extension information” below).⁸ This is improper as a matter of law. The Federal Circuit explained that, “[a]s a patent law term of art, ‘includes’ means ‘comprising’ . . . [and] [n]either includes, nor comprising, forecloses additional elements.” *Sandisk Corp. v. Memorex Prods, Inc.*, 415 F.3d 1278, 1284 (Fed. Cir. 2005). As plainly recited in claim 17, “attribute information *includes* an extension of the audio file” which can be used to differentiate different types of audio files. Col. 12:29-30 (emphasis added). Thus, although “attribute information” may include “extension information,” additional elements are not foreclosed. Defendants’ narrow construction violates this canon of claim construction and should not be adopted.

2. Disputed Claim Term #2: “audio file” (claims 17, 20, & 22)

| LGE’s Construction | Hitachi’s Construction |
|-----------------------------|--|
| “A file having audio data.” | “A “wav” sound data file. The term “audio file” does not include an MP3 file.” |

Initially, LGE contends that the term “audio file” does not require construction because it is a simple, clear phrase that is neither terse nor in need of elaboration for a jury to understand it. *See Embrex, Inc. v. Serv. Eng’g Corp.*, 216 F.3d 1343, 1347 (Fed. Cir. 2000) (“[T]he construction of claims is simply a way of elaborating the normally terse claim language[] in order to understand and explain, but not to change, the scope of the claims.”) (internal citation

⁸ As discussed below, Plaintiff also disputes Defendants’ overly narrow construction of the term “extension information.”

omitted). When the ordinary meaning of a term as understood by a person of skill in the art is readily apparent, claim construction should involve merely “the application of the widely accepted meaning,” and no additional construction is needed from the Court. *Phillips*, 415 F.3d at 1314.

In any event, the claims themselves “provide substantial guidance as to the meaning of particular claim terms.” *Phillips*, 415 F.3d at 1314. Claim 2 specifically provides that an “audio file” can be either a “wav” file or an “mp3” file. Particularly, “the ***audio file includes*** one of first type audio discriminated by the extension of ‘***wav***’ and second type audio discriminated by the extension of ‘***mp3***’.” Col. 11:39-42 (emphasis added). Similarly, claim 17 recites that “if an extension of the ***audio file is ‘mp3,’***” a determination is made regarding “whether the ***audio file constructs normal MP3 audio data.***” Col. 12:35-41 (emphasis added). Clearly, as explained in the claims themselves, an “audio file” can comprise either “wav” audio data and/or “mp3” audio data.

Defendants seek to substitute the ordinary meaning of the term “audio file” with a “wav” file. However, as noted above, this substitution conflicts with the claim language and the ordinary meaning of “audio file.” Limiting the term as Defendants propose creates inconsistency in the use of the term throughout the claims. *See Dayco Prods., Inc. v. Total Containment, Inc.*, 329 F.3d 1358, 1371 (Fed.Cir.2003) (“[I]f a claim term appears in more than one claim it should be construed the same in each claim.”). For example, Defendants’ construction is inconsistent with the limitation that the “audio file constructs a normal mp3 format stream” because a “wav” file can never conform to the MP3 format stream. Col. 12:36-41.

To the extent the Court believes an explanation of this term would assist the jury, LGE proposes the following construction: “a file having audio data.” This alternative is faithful to both the specification, the claims, and the plain and ordinary meaning of this term.

3. Disputed Claim Term #3: “extension of audio file”/“extension information” (claims 17 & 22)

| LGE’s Construction | Hitachi’s Construction |
|--|--|
| “Information that indicates the type of audio file but does not dictate the format of the audio file.” | “These terms refer to the characters at the end of the file name after period, which identify the type of file.” |

The parties agree that the terms “extension of audio file” and “extension information” identify the type of audio file. This is consistent with the ordinary meaning of term “extension” as understood by those skilled in the art. Col. 4:14-27. Importantly, however, the “extension” associated with the audio file does not dictate the *format* of the audio data contained in the audio file, but merely is a way in which audio files may be discriminated from each other. In other words, if the audio file contains audio data formatted according to MP3 standards, adding the extension “.wav” to this audio file will not change the contents of the audio file or somehow transform the MP3 formatted audio data into WAV formatted audio data.

The specification of the ’456 patent anticipated such an occurrence:

“The disc discrimination section 102 discriminates a kind of the inserted disc 101 using the obtained attributive information, and can normally reproduce the file or music recorded onto the disc according to a suitable reproducing method (203 step). Meanwhile, the optical disc player can not [*sic*] normally reproduce the file or music if the attribution of the file or music are wrongly recoded onto the tracks in a case that the disc discrimination section 102 obtains the TOC information of the inserted disc and discriminates the kind of the disc using the attributive information of the inserted disc from the obtained TOC information.

Col. 4:32-39. LGE’s construction is appropriate because it captures this important feature, which is a technical point which the invention of the ’456 patent is intended to deal with.

The language of the claims strongly support LGE’s construction. For example, as recited in Claim 20, “the extension information of the audio file [*is*] *separated from but associated with*

audio data of the audio file.” Col. 12:52-54 (emphasis added). *See Phillips*, 415 F.3d at 1314 (“the claims themselves provide substantial guidance as to the meaning of particular claim terms.”).

Extrinsic evidence reinforces the propriety of LGE’s construction. *Newton’s Telcom Dictionary* (11th ed. 1996), explains that “[c]hecking a file’s extension often tells you what the file does or contains.” *Id.* at 236, Exhibit 7. The extension “.mp3” indicates that the audio file *contains* data compressed according to “MP3” format, but merely adding this extension does not somehow convert the audio data contained within the file to “MP3” format.

4. Disputed Claim Term #4: “reproducing mode” (claims 17, 20, 22 & 27)

| LGE’s Construction | Hitachi’s Construction |
|---|--|
| “A mode for producing an audible representation of the audio file.” | “ ‘Reproducing mode’ refers to ‘MP3 on Mode’ and ‘MP3 off Mode.’ ‘MP3 on Mode’ means a mode in which MP3s will be played from a medium that contains both MP3s and non-MP3s. ‘MP3 off Mode’ means a mode in which MP3s will not be played from a medium that contains both MP3s and non-MP3s.” |

The patent is clear that invention relates to various means to audibly represent music. One aspect of the disclosed invention is to be able to reproduce music in varying formats (*e.g.*, both music from a CD and music from a computer, such as “WAV” audio files and “MP3” audio files) so the user’s listening experience is simplified and/or uninterrupted. *See, e.g.*, Col. 4:27-32; Col 5:16-23, 36-38, 60-63; Col. 6:7-8; Col. 7:10-14, 33-39; Col. 9:3-6, 14-20; Col. 10:11-13; FIG. 4. The term “reproducing mode” simply refers to a mode for reproducing such music or other sounds. This term needs no further construction and should be construed according to its common and ordinary meaning. To the extent the Court believes an explanation of this term would assist the jury, LGE proposes the following construction: “A mode for producing an audible representation of the audio file.”

The claims of the '456 patent demonstrate that LGE's construction is the correct one. For example, Claim 3 recites "changing the current reproducing mode *into another reproducing mode* based on the extension information." Col. 11:46-49 (emphasis added). The claim says nothing about restricting the "reproducing mode" to only an "MP3 On Mode" or an "MP3 Off Mode"—it recites "another mode" which can comprise any mode of reproducing any type of audio file. Similarly, Claim 4 recites "identifying *a* current reproducing mode" and "determining whether to maintain the current reproducing mode." Col. 11:51-57 (emphasis added). Claim 21, rather than limiting the "reproducing mode" to merely MP3 "On" and "Off" modes, recites "wherein the reproducing mode is a mode for decoding the audio file." Col. 12:7-8. Clearly, the specification and claims envisioned "reproducing mode" to cover more than merely MP3 "On" and "Off" modes.

Defendants invite the Court to import limitations from a preferred embodiment disclosed in the specification to restrict the meaning of the term "reproducing mode" to only an "MP3 On Mode" and an "MP3 Off Mode." The Federal Circuit has "consistently warned against this approach to claim construction, which is seldom justified." *Arlington Indus., Inc. v. Bridgeport Fittings, Inc.*, 345 F.3d 1318, 1327 (Fed. Cir. 2003). Although an example disclosed in the '456 patent describes an "MP3 On Mode" and an "MP3 Off Mode," this restriction ultimately was not recited in *any* of the issued claims. The '456 patent clearly contemplated a "reproducing mode" that can audibly reproduce types of audio files beyond "MP3 On" and "MP3 Off" modes.

To the extent that the Court thinks an explanation of this term would help the jury, LGE proposes the following construction: "a mode for producing an audible representation of the audio file." Again, this alternative is faithful to both the specification and the plain and ordinary meaning.

5. Disputed Claim Term #5: “establishing a reproducing mode in response to the type of the audio file as a result of the step (b) [sic]” (claim 17)

| LGE’s Construction | Hitachi’s Construction |
|---|--|
| “Automatically establishing a mode for playing the specific audio file based on the result of step (a)” | “Defendants contend that no further construction of this phrase is needed, beyond the constructions already provided for certain terms found within the clause, such as ‘reproducing mode’ and ‘audio file.’ ” |

The disputed claim language requires automatically establishing the reproducing mode as a result of the preceding step, *i.e.* the system automatically establishes a reproducing mode upon reading the attribute information associated with the audio file. In this context, the phrase indicates that upon completion of step (a),⁹ the reproducing mode is automatically established.

As recited in claim 17, the particular “reproducing mode” is established based upon reading the “attribute information” associated with the audio file. Col. 12:28-34. There is ample support in the specification for LGE’s construction. For example, the specification discloses the following:

“[T]he optical disc player ***establishes a reproducing mode according to the track attribution*** recorded onto the inserted disc 101, and reproduces the disc tracks (403 step). At this time, the optical disc player performs the reproducing operation according to the established reproducing mode and the track attribution recorded onto the disc.”

Col. 5:60-65 (emphasis added); *see also* Col. 1:35-38, 63-65; Col. 2:8-14; Col. 3:57-61; Col. 4:24-43; Col. 6:1-2, 25-29, 43-48; Col. 10:28-34; FIGS. 2, 4 and 9. “Establishing the reproducing mode” is automatic in the sense that “the optical disc player establishes” the reproducing mode; it is not accomplished manually by the user. *See, e.g.*, Col. 5:60-65.

⁹ One skilled in the art reading this claim limitation would immediately recognize that the clause “as a result of step (b)” recited in claim 17 should in fact read “as a result of step (a).” In *Novo Indus, L.P. v. Micro Molds Corp.*, 350 F.3d 1348, 1355 (Fed. Cir. 2003), the Federal Circuit, citing *I.T.S. Rubber Co. v. Essex Rubber Co.*, 272 U.S. 429, 441-43 (1926), held that “certain obvious errors in the patent can be corrected by the district court in construing the patent.” The typographical error reciting to “step (b)” rather than “step (a)” is an obvious error that LGE respectfully requests the Court to correct.

6. Disputed Claim Term #6: “audio file constructs normal mp3 audio data”/“audio file constructs a normal mp3 format stream” (claims 17, 20, 22 & 27)

| LGE’s Construction | Hitachi’s Construction |
|---|---|
| “The audio file comprises audio data conforming to standard Layer 3 digital audio compression algorithms developed by the Moving Picture Experts Group (MPEG).” | “Conforms to the MPEG1 Layer 3 digital audio compression standard developed by the Moving Picture Experts Group.” |

The only dispute associated with this claim element surrounds the construction of the term “audio file.” As discussed above, the term “audio file” includes, but is not limited to, MP3 files and WAV files. Defendants’ proposed construction of the term “audio file,” arguing the term is synonymous with WAV files and excludes MP3 files, is inconsistent with the recitation that “the audio file constructs normal MP3 audio data.” Indeed, a WAV file can never conform to the MPEG Layer 3 digital audio compression standard.

7. Disputed Claim Term #7: “header information” (claim 17)

| LGE’s Construction | Hitachi’s Construction |
|---|---|
| “Digital data that represents the contents of an audio file.” | “A bit sequence preceding the sound data that identified the sound data.” |

The claim language requires the step of: “deciding whether the audio file *constructs normal MP3 audio data* or not, *based on the obtained header information*.” Col. 12:38-41 (emphasis added). Digital data, in the form of “header information,” represents the contents of an audio file, in this case “MP3 audio data.”

The specification also supports LGE’s construction, stating that “the optical disc player discriminates whether the header information of the file or music includes a normal MP3 stream or not by using the header information of the file or music obtained[.]” Col. 5:1-4. The “header information” is representative of the contents of the audio file and is used to distinguish between MP3 audio files and non-MP3 audio files. *See also* Col. 4:54-61, 65-67; Col. 5:5-15, 24-31.

LGE's construction of "header information" is also consistent with its common ordinary meaning. *See, e.g., Dictionary of Computing* 222 (4th ed. 1996), Exhibit 5, (defining "header" as: "Some coded information that precedes a more general collection of data and gives details about it."); *Newton's Telecom Dictionary* 286 (11th ed. 1996), Exhibit 7, (defining "header" as: "The portion of a message that contains information that will guide the message to the correct destination."); *Microsoft Corp. v. Multi-Tech Systems, Inc.*, 357 F.3d 1340, 1352 (Fed. Cir. 2004) (citing *Microsoft Computer Dictionary* 215 (4th ed. 1999)) ("We therefore start from the presumption that the term "headers" carries its ordinary meaning of "information structure[s] that precede[] and identif[y] the information that follows."). There is simply nothing in the specification or claims of the '456 patent that limits "header information" to a bit sequence as urged by Defendants.

8. Disputed Claim Term #8: "audio file is not available under the established reproducing mode" (claim 22)

| LGE's Construction | Hitachi's Construction |
|---|--|
| "The audio file cannot be played using the established reproducing mode." | "Cannot be played using the established reproducing mode." |

LGE does not believe that this language requires a construction beyond the plain language of the claims (the "audio file" language, Disputed Claim Term #2, has been dealt with earlier). The parties agree that the claim language immediately preceding this phrase—"automatically changes the reproducing mode"—means "the reproducing mode changes from one mode to the other mode without user intervention." *See Jt. Claim Construction Statement* at 2. According to Defendants' proposed constructions here, the claimed invention "changes" from an "MP3 On Mode" to an "MP3 Off Mode" or vice versa. If an "audio file" cannot comprise an MP3 file, there will never be an "MP3 On Mode" and thus, the "reproducing mode" can never be

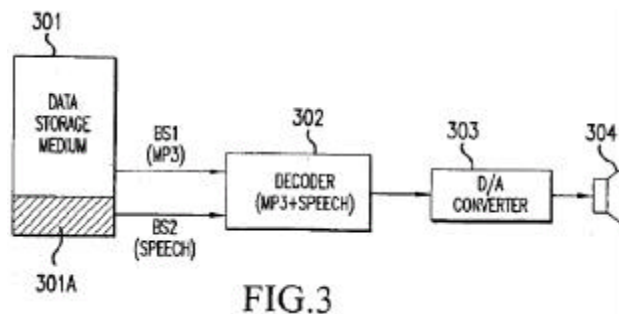
“changed.” Defendants’ construction is incorrect. To the extent any further construction is necessary, the claim term should be accorded its common and ordinary meaning.

III. U.S. PATENT NO. 6,721,709

A. Overview of the ’709 Patent

As noted above with respect to the ’456 patent, as different types of audio data having different formats or characteristics (such as compression rate) became more widely used in the industry, digital device players have become more complex to accommodate and play the audio files of varying formats and characteristics. One feature of the ’709 patent is an improved digital data player for organizing, manipulating, and playing or “reproducing” multiple types of audio data, such as audio data comprising “MP3” music files and text data associated with that music, such as a song title. *See, e.g.*, Col. 6:30-36.

The ’709 patent recognizes that data comprising an MP3 file is compressed differently than other types of data, such as text data (a song title) and speech data (a lecture requiring lower compression rates than MP3 files). *See, e.g.*, Col. 3:58-65; Col. 5:64 – 6:6. Because the types of audio data are compressed differently, the patent instructs that each be sent to a functionally separate “decoder” in order to be reproduced. A “decoder” is simply hardware or software that converts a coded signal back to its original digital signal. This is disclosed in Figure 3:



As depicted in Figure 3 above, two different types of audio data, in this example MP3 audio data and speech audio data, are retrieved from a data storage medium 301 (computer memory) and selectively directed to the corresponding decoder whose function it is to decode

that particular type of data. Additional features of the invention, including those described with reference to Figure 4, are discussed further below.

B. '709 Disputed Claim Terms

LGE asserts that Defendants infringe claims 1, 2 and 3 of the '709 patent. The asserted claims are reproduced below, with the disputed terms in bold:

1. A data reproducing device for reproducing data including at least two types of audio data, wherein at least one of said at least two types of **audio data is associated with text data for reproduction**, said at least two types of audio data including:
a **first type of audio data**; and
a **second type of audio data** having been formatted in a different manner from the **first type of audio data**, wherein a compression rate is one factor causing the difference in formatting manner, the data reproducing device comprising:
a first **decoder** provided to decode the **first type of audio data**;
a second **decoder** provided to decode the **second type of audio data** in a different decoding manner from the first **decoder**, wherein **the first decoder and the second decoder are functionally separated from each other**; and
a **selector, having at least a first output and a second output separated from each other, for selectively directing one of said outputs to the corresponding one of the first decoder and the second decoder.**
2. The data reproducing device of claim 1, further comprising:
a third **decoder**, having a third decoding function, and decoding digital data according to said third decoding function.
3. The data reproducing device of claim 2, wherein
said first **decoder** decodes MP3 files;
said second **decoder decodes speech**; and
said third **decoder decodes text**.

The parties dispute the meaning of eight claim terms recited in the three asserted claims of the '709 patent. We discuss each in turn below.

1. Disputed Claim Term #1: “audio data is associated with text data for reproduction” (claim 1)

| LGE's Construction | Hitachi's Construction |
|--|---|
| “Text data is stored in association with audio data and reproduced cooperatively in accordance with that association.” | “Audio data and its related text data are stored in separate regions of a memory, with a header in the audio data that points to the associated text data, the text data being stored in a dedicated, idle region of the memory.” |

LGE's construction is derived from the plain language of the claims and is directly supported by the usage in the specification. As explained in the patent, "the MP3, speech, and text data can be stored *in association with one another, and reproduced cooperatively in accordance with that association.*" Col. 6:7-10 (emphasis added); *see also* Col. 6:10-16, 37-48; *Vitronics*, 90 F.3d at 1582 (the specification "is the single best guide to [determining] the meaning of a disputed term").

In contradiction to basic tenets of construction, Defendants seek to add extraneous references to particular "regions of a memory" where "audio data" and "text data" is stored as well as reading in "header" information. But that is simply reading limitations from the specification into the claims, which is improper. *See, e.g., Comark Communications, Inc. v. Harris Corp.*, 156 F.3d 1182, 1186 (Fed. Cir. 1998) (reiterating the Federal Circuit's "repeated statements that limitations from the specification are not to be read into the claims"). And none of the asserted claims recite the word "memory" or "header". These terms are recited in the specification in connection with one preferred embodiment, but claims are not limited to only the preferred embodiments. *See Phillips*, 415 F.3d at 1316-17 (characteristics of preferred embodiments should not become part of the claims as extraneous limitations).

Other claims of the patent in question, both asserted and unasserted, can also be valuable sources of enlightenment as to the meaning of a claim term. *Vitronics*, 90 F.3d at 1582. In particular, differences among claims can be a useful guide in understanding the meaning of particular claim terms. *Laitram*, 939 F.2d at 1538. For example, the presence of a dependent claim that adds a particular limitation gives rise to a presumption that the limitation in question is not present in the independent claim. *See Liebel-Flarsheim*, 358 F.3d 910. Claim 5, depending from independent claim 1, recites a "read header" and a "data storage medium", the two

additional limitations Defendants seek to add to independent claim 1. Col. 7:41-45. Following the Federal Circuit’s directive, a presumption exists that the term “audio data in association with text data” does not include these additional limitations. Defendants have not, and cannot, rebut this presumption.

2. Disputed Claim Term #2: “first type of audio data” (claim 1)

| LGE’s Construction | Hitachi’s Construction |
|--|---|
| “Digital data comprising formatted audio information (such as MP3 format) where compression rate is one defining factor of the format type.” | “The first type was compressed at a different compression rate than the second type.” |

LGE’s construction flows from the plain language of the claims and is supported by the specification. With respect to the claim language, consistent with the “second type of audio data” recited immediately after this element in claim 1, the “first type of audio data” must be “formatted in a different manner” than the “second type of audio data” and “compression rate is one factor causing the difference in formatting manner.” Col. 7:7-12; *ACTV, Inc. v. Walt Disney Co.*, 346 F.3d 1082, 1088 (Fed. Cir. 2003) (“the context of the surrounding words of the claim also must be considered”). The claim language does not preclude other factors from defining the type of audio data but does require that compression rate be one of the factors for identifying the audio data.

The specification is also clear. Throughout the specification, the patent emphasizes the difference between the format of different types of audio information. For example, the specification explains that an MP3 file is “compressed according to an MPEG1 Layer3 coding technique,” Col. 1:30-33, whereas “speech” audio data is “compressed according to any well-known speech signal compression technique.” Col. 3:39-41.

Defendants appear to agree that the compression rate is what differentiates the “first type of audio data” from the “second type of audio data.” In that regard, the parties’ dispute here is

one of clarity and completeness. LGE's construction makes specific recitation to the MP3 format, which is clearly contemplated by the claim, and is worded in a manner that is much more helpful to a jury (as compared to Defendants' offering that simply defines the first with respect to the second).

3. Disputed Claim Term #3: "second type of audio data" (claim 1)

| LGE's Construction | Hitachi's Construction |
|--|---|
| Digital data comprising formatted audio information (such as MP3 format) formatted differently than said first type of audio data, where compression rate is one defining factor in the differentiation. | The first type was compressed at a different compression rate than the second type. |

Consistent with LGE's construction of "first type of audio data" above, the term "second type of audio data" means that the "second type of audio data was compressed at a different compression rate than the first type." *See, e.g.*, Col. 1:7-12, 30-33; Col. 3:39-41; Col. 7:7-12.

The Court should adopt this construction for the same reasons.

4. Disputed Claim Term #4: "decoder" (claims 1, 2 & 3)

| LGE's Construction | Hitachi's Construction |
|--|--|
| "Hardware and/or software that converts a coded signal back to its original digital signal." | "A device that decompresses data that was compressed by a particular type of encoder." |

It is well known that a decoder can be implemented as hardware and/or software, and the '709 patent specifically contemplates this technical point. The dispute between the parties, as understood, appears to at least surround this issue. The basic concept of a decoder is disclosed and described in the patent with reference to Figure 3 reproduced above.

As depicted, two different types of audio data, in this example MP3 audio data and Speech audio data, are retrieved from a data storage medium 301 (computer memory) and selectively directed to the corresponding decoder whose function it is to decode that particular type of data. In this example, the decoder 302 comprises two functionally separate decoders to

decode the two different types of audio data—the MP3 audio data and the speech audio data (e.g., “(MP3+SPEECH)”).

Importantly, the patent makes clear that the decoders may be implemented in software:

Consequently, the decoder 302 includes the speech decoding algorithm in addition to the typical MP3 decoding function. In this connection, the use of a processor with an appropriate arithmetic capability makes it possible to implement the decoder 302 with no further hardware.

Col. 3:51-54.

The patent is unambiguous that the decoder may be implemented on a processor running a software algorithm. The term “decoder” should not be construed, as Defendants urge, to preclude the specifically disclosed implementation.

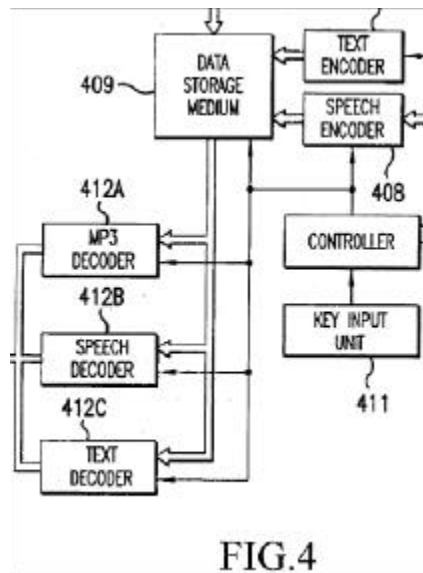
The Court may also consider extrinsic evidence to ensure that its claim construction is not inconsistent with “clearly expressed, plainly apposite, and widely held understandings in the pertinent field.” *Pitney Bowes*, 182 F.3d at 1309; *Phillips*, 415 F.3d at 1317. This is especially true when interpreting terms of a technical nature, such as “decoder”. Such extrinsic evidence may take the form of dictionaries, technical treatises, and articles. *Phillips*, 415 F.3d at 1317-18 (citing *Vitronics*, 90 F.3d at 1584). The *Dictionary of Computing*, (4th ed. 1996), defines “decoder” as: “The means by which a decoding processes is effected (*see* code). It may be implemented in hardware or software, the process being algorithmic in nature.” *Id.* at 131, Exhibit 5. This definition is directly in line with the teachings of the ’709 specification and LGE’s definition.

5. Disputed Claim Term #5: “the first decoder and the second decoder are functionally separated from each other” (claims 1, 2 & 3)

| LGE’s Construction | Hitachi’s Construction |
|--|--|
| “The first and second decoders perform separate and distinct decoding functions respectively for two different types of audio data.” | “The first decoder and the second decoder perform different decoding functions.” |

The dispute with this claim term appears to surround the “functionally separated” language and the nature of the decoding functions. At bottom, LGE’s construction is more precise, stays truer to the actual language of the claims, and maintains the important feature relating to functional separation and decoding of audio data.

As disclosed with reference to Figure 3, two different types of audio data, in this example MP3 audio data and speech audio data, are retrieved from a data storage medium 301 (computer memory) and selectively directed to the corresponding decoder whose function it is to decode that particular type of data. In this example, the decoder 302 comprises two functionally separate decoders to decode the two different types of audio data—the MP3 audio data and the speech audio data (*e.g.*, “(MP3+SPEECH)”). This same concept is disclosed in Figure 4 of the ’709 patent, a portion of which is reproduced below:



In this example, three functionally separate decoders are disclosed, one for decoding MP3 audio files, one for decoding SPEECH audio files, and one for decoding TEXT data associated with the MP3 and/or SPEECH audio files. Col. 6:7-13, 30-48. Three separate blocks are illustrated for each decoder, but the ’709 patent teaches that the invention could implement

multiple “decoders” with a “processor with an appropriate arithmetic capability” so that “no further hardware” is necessary. Col. 3:51-54. That is, the patent specifically contemplates a processor running code relating to different, functionally separate, decoders.

The specification repeatedly discloses separate and distinct decoding functions for two different types of audio data. For example, the patent discloses “a decoder, having at least first and second decoding functions, identifying a type of digital data output from a data storage medium, selecting one of said first and second decoding functions based on said identified type, and decoding said output digital data using said selected decoding function.” Col. 2:10-15.

With reference to Figure 3 (reproduced above), the patent further explains:

decoder 302 decodes an output MP3 file bit stream BS1 from the data storage medium 301 according to an MP3 decoding algorithm. The decoder 302 further decodes an output speech bit stream BS2 from the data storage medium 301 according to a speech decoding algorithm.

Col. 3:22-26; *see also* Col. 3:42-50.

In any event, the dispute relating to this term flows into the dispute relating to the Disputed Term #6, to which we now turn.

6. Disputed Claim Term #6: “a selector, having at least a first output and a second output separated from each other, for selectively directing one of said outputs to the corresponding one of the first decoder and the second decoder” (claims 1, 2 & 3)

| LGE’s Construction | Hitachi’s Construction |
|---|---|
| <p>This element should be construed pursuant to 35 U.S.C. § 112, ¶ 6.</p> <p>The function associated with this means-plus-function element is: “selectively directing one of said outputs to the corresponding one of the first decoder and the second decoder.”</p> <p>The structure disclosed in the specification for performing this function is a processor, such as controller which retrieves formatted data from memory and based on this format, selectively directs the data to a corresponding decoder.</p> <p>The claim further requires that the structure corresponding to the “selector” have at least a first</p> | <p>“A switch with at least two distinct, physically separate outputs corresponding to two distinct, physically separated decoder circuits, where each output is connected to its corresponding separate decoder circuit.”</p> |

| | |
|---|--|
| output and a second output separated from each other. | |
|---|--|

This claim element relates to the “selector” of the device and, based on the dispute of the parties, requires an inquiry not only into the proper construction of “selector” but also the relationship between the first and second decoders. The initial dispute is whether this claim should be construed in accordance with 35 U.S.C. § 112, ¶ 6. Regardless of how that issue is resolved, however, the result is the same. The “selector” language of the claim must be construed to require a processor which retrieves formatted data from memory and based on this format, selectively directs the data to a corresponding decoder.

Although the claim does not use the familiar term “means” normally associated with section 112, ¶ 6, that does not end the analysis. Section 112, ¶ 6 provides that “an element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof.” 35 U.S.C. § 112, ¶ 6 (1994). In *Personalized Media Communications, LLC v. Int’l Trade Comm’n*, 161 F.3d 696, 703-04 (Fed. Cir. 1998), the Federal Circuit stated that the failure to use the word “means” in a claim element creates a rebuttable presumption that § 112, ¶ 6 does not apply. In determining whether the presumption is rebutted, “the focus remains on whether the claim . . . recites sufficiently definite structure.” *Id.* at 704. The presumption can be rebutted if the evidence intrinsic to the patent and any relevant extrinsic evidence so warrants. *See, e.g., Mas-Hamilton Group v. LaGard, Inc.*, 156 F.3d 1206, 1214 (Fed. Cir. 1998) (“The limitation ‘lever moving element for moving the lever’ is drafted as a function to be performed rather than definite structure or materials.”); *Cole v. Kimberly-Clark Corp.*, 102 F.3d 524, 531 (Fed. Cir. 1996).

The language of the limitation at issue here, “a selector . . . for selectively directing”, relies on functional terms rather than structure or material to describe performance of the claimed

function.¹⁰ See, e.g., *Mas-Hamilton*, 156 F.3d at 1213. When determining whether sufficient structure exists, the Court should consider whether one skilled in the art would understand the term “selector” to be synonymous with a structure. *Apex, Inc. v. Raritan Computer, Inc.*, 325 F.3d 1364, 1372 (Fed. Cir. 2003); *Watts v. XL Systems, Inc.*, 232 F.3d 877, 880-81 (Fed. Cir. 2000). The term “selector” does not have a generally understood meaning in the art. For example, neither *Newton’s Telecom Dictionary* nor *The Dictionary of Computing*, dictionaries cited by both parties in support of other constructions, include a definition of the term “selector” applicable here. See *Greenberg v. Ethicon Endo-Surgery, Inc.*, 91 F.3d 1580, 1583 (Fed. Cir. 1996) (“it is appropriate to look to extrinsic evidence, including but not limited to dictionaries and expert testimony to assist the trier of fact in understanding evidence.”). Accordingly, the Court should interpret this claim element as falling within the ambit of § 112, ¶ 6 and follow the guidelines to claim construction specified by statute: “such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.” 35 U.S.C. § 112, ¶ 6 (1994); *Mas-Hamilton*, 156 F.3d at 1214; *Cole*, 102 F.3d at 530-31.

The function associated with this element is recited in the body of the claim, namely “selectively directing one of said outputs to the corresponding one of the first decoder and the second decoder.” The structure for performing this function disclosed in the specification is “a controller [capable of] identifying a type of digital data output from a data storage medium [and] selectively sending said output digital data to one of said first and second decoders based on said identified type” of digital data output. Col. 2:22-24. This structure is disclosed in Figure 4 of the patent reproduced above.

¹⁰ The fact that this claim element recites “a selector, having at least a first output and a second output” does not compel a conclusion that the term “selector” is not within the ambit of 35 U.S.C. § 112, ¶ 6. As explained in *Laitram*, 939 F.2d at 1536, “[t]he recitation of some structure in a means-plus-function element does not preclude the applicability of [§ 112, ¶ 6] when it merely serves to further specify the function of the means.” That is the case here.

For example, when reproducing a “speech file,” “the controller 410 reads the speech file stored in the data storage medium 409 . . . and supplies the read speech file to the speech decoder 412B.” Col. 5:18-21. Similarly, “the controller 410 reads the text data from [memory 409] and supplies the read text data to the text decoder 412C.” Col. 5:56-59. It is readily evident that the patent intended the “selector” to correspond to this controller, as it is the structure that retrieves the encoded data from memory and selectively sends the particularly formatted output to the correct decoder. The controller 410 also has a “first output” and a “second output.” The patent explains that “the controller 410 causes the associated data to be output from the data storage medium 409 in synchronization with the output of the primary data.” Col. 6:27-29. For example, “when the MP3 file 1...is decoded and outputted, the corresponding text data 1...is outputted and displayed. As a result, the user is able to listen to desired MP3 music while viewing character information such as words or a tune name on the display unit.” Col. 6:30-36; *see also* Col. 6:37-48. There is no requirement that the “first output” and the “second output” be physically separate as urged by Defendants.

As explained above, the decoders need only be “functionally separated” and the specification contemplates a software-based decoder (“the use of a processor with an appropriate arithmetic capability makes it possible to implement the decoder 302 with no further hardware.”). Col. 3:53-55. Indeed, if the inventors intended the claimed invention to be limited to physically separate decoders, they would not have included the term “*functionally* separate.” *See, e.g., Anchor Wall Systems, Inc. v. Rockwood Retaining Walls, Inc.*, 340 F.3d 1298, 1310-11 (Fed. Cir. 2003) (district court erred when narrowing claim by reading out the adverb “generally” from the term “generally parallel”); *Innova/Pure Water, Inc. v. Safari Water Filtration Sys, Inc.* 381 F.3d 1111, 1118-20 (Fed. Cir. 2004).

While LGE believes that § 112, ¶ 6 should apply under the circumstances, the result is the same if it does not. The term “selector” does not have a common ordinary meaning to those skilled in the art. The specification expressly defines the “selector” limitation in the specification. *See, e.g., CCS Fitness*, 288 F.3d at 1366 (when the specification reveals a definition of a claim term given by the patentee, the inventor’s lexicography governs). More specifically, the inventors defined “selector” as a processor capable of retrieving differently formatted data from memory and selectively directing this formatted data to decoders capable of decoding that particular type of formatted data. *See, e.g.,* Col. 2:22-24; Col. 3:53-55; Col. 5:56-59; Col. 6:27-29, 37-48.

7. Disputed Claim Term #7: “decoder decodes speech” (claim 3)

| LGE’s Construction | Hitachi’s Construction |
|---|--|
| “The decoder decodes audio data including spoken word that is compressed differently than an MP3 file.” | “A decoder that decompresses compressed speech data. ‘Decoder’—see above.” |

To the extent a construction is necessary at all, this claim element should be construed as follows: “The decoder decodes audio data including spoken word that is compressed differently than an MP3 file.” This construction tracks the disclosure in the specification of the patent. *See, e.g.,* Col. 3:39-41, 58-65; Col. 4:42-43; Col. 5:10-11, 22-25; Col. 6:37-43. Moreover, LGE’s construction adds further clarity and would be helpful to the jury. We also refer to the discussion above relating to the “decoder” element of the claims.

8. Disputed Claim Term #8: “decoder decodes text” (claim 3)

| LGE’s Construction | Hitachi’s Construction |
|--|--|
| “A decoder that decodes character information stored in association with audio data and reproduced cooperatively in accordance with that association.” | “A decoder that decompresses compressed text data. ‘Decoder’—see above.” |

Again, while LGE believes that the plain language of the claim itself is clear and requires no further explanation, to the extent this claim element is construed, it should be construed according to its common ordinary meaning and within the context of the other elements of the

claims: “The decoder decodes character information stored in association with audio data and reproduced cooperatively in accordance with that association.” *See, e.g.*, Claims 1 and 3; Col. 4:43-45; Col. 5:58-63; Col. 6:30-36, 57-58. Again, we also refer to the discussion above relating to the “decoder” element of the claims.

IV. U.S. PATENT NO. 5,790,096

A. Overview of the '096 Patent

The '096 patent generally covers an electronic control system that “adapts [a] video image for display on a wide variety of full color and monochrome flat panel display systems.” Col. 2:28-31. While the patent discloses a number of innovative features for systems and methods for displaying images on flat panel displays, one aspect of the disclosed system, which relates to claim 21 (the only asserted claim), is controlling “the size, position and orientation of a video image presented on a flat panel display.” The control system allows a video image presented on a flat panel display to be “up-sized or down-sized, and positioned to fit the video screen of the flat panel display being used.” Col. 2:48-50. The overall architecture of the control system is shown and described with reference to Figure 1.

A video signal, which includes information related to a video image, is received by the system from a video source (via connector 10). Col. 4:66 – 5:10. One feature of the system described in the patent is the ability to accept a variety of different video signals which correspond to differing video images having diverse formats, resolution, and data rates. Col. 2:32-38. The system described in the patent is used in connection with “flat panel displays” and allows display of the received video image on the flat panel display (regardless of the diversity of the received video signals) and, most relevant here, allows for adjustment of the size, position and orientation of the received video image.

B. '096 Patent Disputed Claim Terms

The only asserted claim from the '096 patent is independent system claim 21, which is reproduced below with the disputed terms in bold:

21. A system for controlling size, position and **orientation** of a video image presented on a **flat panel display**, and in electrical communication with a memory system having stored therein said **video image**, and receiving a **video signal** from a video source, which comprises:

[a] timing control means receiving said **video signal** from said video source at a **video signal data rate** for

[i] generating therefrom enable, vertical synchronization, horizontal synchronization, and first clock signals for driving said **flat panel display**,

[ii] generating column start, row start, **column replicate, and row replicate control signals** for **sizing said video image while maintaining a video signal resolution**, and

[iii] generating first control signals for reading said video image in said memory system;

[b] image size/position control means in electrical communication with said timing control means and responsive to

said column start, row start, **column replicate, and row replicate control signals** and said first control signals for generating **output column address control signals, output row address control signals** for said memory system, and a **pixel clock signal**; and

[c] frame buffer output control means in electrical communication with said timing control means, said memory system, said image size/position control means, and said flat panel display, and responsive to

said pixel clock signal for reading said video image from said memory system.

Col. 31:59 – 32:19 (emphasis and alphanumeric identifiers added).

1. Disputed Claim Term #1: “orientation”

| LGE's Construction | Hitachi's Construction |
|--|---|
| “The extent to which a displayed image is rotated or flipped.” | “The state of video image describing whether it has been rotated 90 degrees, 180 degrees, or mirrored.” |

The word “orientation” is a straightforward word of common usage and it should be construed that way. The specification describes a system to permit adjustment of the way in which a visual representation of a video image is presented on a flat panel display, including controlling the size (how large the image appears), position (location of the image as presented), and orientation (extent to which the image is rotated or flipped). The specification provides a

broad recitation of the manner in which an image may be displayed on a flat panel: “[i]n accordance with the invention, images on a flat panel display may be upsized, downsized, positioned and orientated automatically or through use of user controls.” Col. 2:4-6; *see also* Col. 3:19-24; Col. 8:50-64; Col. 11:40-49; Col. 22:25-37. The general, broader understanding of that word is used throughout the specification, and is further supported by the common definition from extrinsic sources. For example, the term “orient” commonly is defined to mean “to align or position with respect to a point or system of reference,” and the term “orientation” likewise is defined to mean “the act of orienting or the state of being oriented” and “location or position relative to the points of the compass.” *The American Heritage Dictionary* 1276 (3d ed. 1992), Exhibit 5. In the ’096 patent, the “point or system of reference” is the flat panel display screen. *See, e.g.*, Col. 13:19-20 (“change...orientation of image on the screen”).

Figure 12 of the patent illustrates “various image presentations that may be created in accordance with the invention.” Col. 3:66-67; *see also* Col. 8:62 – 9:11. In Figures 12(a)-12(e), the concepts of position and orientation are illustrated. An image may be “normal” (250), rotated (253 or 254), flipped and rotated (251), and flipped so as to form a mirror image (252). The various “orientations” shown in Figure 12 are simply examples of the claimed “orientation” and the claim should not be limited to any particular orientation as urged by Defendants. *Arlington Indus.*, 345 F.3d at 1327 (noting that courts must take extreme care when ascertaining the scope of the claims, lest they simultaneously import claim limitations that were unintended by the inventors); *see also E.I. du Pont de Nemours*, 849 F.2d at 1433 (finding it improper to impose “a limitation read into a claim from the specification wholly apart from any need to interpret what the patentee meant by particular words or phrases in the claim”).

2. Disputed Claim Term #2: “video image”

| LGE’s Construction | Hitachi’s Construction |
|--------------------|------------------------|
|--------------------|------------------------|

| | |
|---|---|
| “Data used to generate a visual representation of a video frame.” | “A video frame described by a set of rows and columns.” |
|---|---|

Disputed Claims Terms #2, #3, and #4 all relate to the term “video” – “video image,” “video signal” and “video signal data rate.” Unsurprisingly, these terms are interrelated because the flat panel display control system of the '096 patent visually displays video images on a flat panel screen by storing and processing data carried on a video signal received at a data rate. The first term -- “video image” -- should be construed according to its ordinary meaning as understood in the context of the '096 patent: “Data used to generate a visual representation of a video frame.”¹¹ The claim clearly requires a construction that includes a video image stored in a memory system for later processing and presentation on a flat panel display. Such presentation is illustrated, for example, in Figure 12 of the '096 patent. That is a key point missed by Defendants and that lies at the center of the dispute.

Of course, what is stored in a memory is data (*i.e.*, logical 1s and 0s) that can be read by a computer system in which the memory belongs. The “video image” of claim 21 consequently must include the “data” that can be stored or manipulated by the system. In particular, claim 21 recites: “a memory system having stored therein said video image” and the processing that is later recited later in the claim (*i.e.*, by timing control means and frame buffer output control means) is done with respect to the “video image” in the memory system. Thus, the claimed “video image” refers to data that is used to generate a visual representation ultimately displayed on a flat panel display.

3. Disputed Claim Term #3: “video signal”

| LGE's Construction | Hitachi's Construction |
|---|---|
| “A signal containing data used to generate a visual representation of a video frame.” | “An electronic signal containing information specifying the location and brightness of each point on a display, along with the timing signals to place the image properly |

¹¹ LGE believes that no specific construction is required for the noted term in light of its common and plain meaning; a dispute nevertheless appears to exist.

| | |
|--|---|
| | on the display. Video signal formats include VGA, SVGA, XGA, NTSC, PAL, and SECUM video.” |
|--|---|

As explicitly stated in the claim, a “video signal” is received from a video source and used, *inter alia*, to present a video image on a flat panel display. As described above, the term “video image” means “data used to generate a visual representation of a video frame.” Thus, to ensure consistency between construction of various terms within claim 21, and preserve the interconnection between the terms “video image” and “video signal” as claimed, the term “video signal” must mean “a signal containing data used to generate a visual representation of a video frame.” Defendants’ construction not only fails to preserve continuity among the claim terms, but also injects unnecessary confusion into a term that is otherwise well-understood. For example, including a list of specific information contained within the “video signal,” such as “location and brightness of each point on a display” and “timing signals to place the image properly on the display” will not assist the finder of fact in understanding this relatively simple term, and such limitations are not requirements of the clear language. *See Konami Corp. v. Roxor Games, Inc.*, 445 F. Supp. 2d 725, 732-33 (E.D. Tex. 2006); *Civix-DDI, LLC v. Cellco Partnership*, 2005 WL 831307 at *7 (N.D. Ill. April 6, 2005) (rejecting proposed construction that would “likely confuse the jury”) (citing *Retractable Techs. v. New Medical Techs.*, 2004 WL 435054 (E.D. Tex. Mar. 3, 2004) (the district court should adopt a construction that will assist the fact finder in making its determinations)).

4. Disputed Claim Term #4: “video signal data rate”

| LGE’s Construction | Hitachi’s Construction |
|--------------------------------------|--|
| “The frequency of the video signal.” | “The number that reflects the vertical frequency of the video signal from the video source.” |

The parties seem to agree that the phrase “video signal data rate” is associated with a video signal frequency. However, Defendants seek to define “video signal data rate” as being

associated only with a “number that reflects the vertical frequency.” The claim language does not so limit the scope. Indeed, one of the advantages of the invention is that it will accept any video format. *See, e.g.*, Col. 2:33-34. While a video signal data rate may, in some circumstances, include a vertical frequency, it is not defined by the vertical frequency. The video signal data rate also may include other information, such as data related to frame rate, pixel rate, and bandwidth, which may be described more generally as “frequency” information. *See, e.g.*, Col. 10:1-35. For their construction, Defendants rely on column 4, lines 45-65 of the ’096 patent; however, the timing characteristics in this passage support the broader construction advocated by LGE. Col. 4:45-65. While certain aspects of “video format,” which is defined in column 4, may have some relation to the concept of vertical frequency, is simply not the same as the claim term actually being construed here—“video signal data rate.” *See id.* The claim term should be given its broader construction as urged by LGE.

5. Disputed Claim Term #5: “flat panel display”

| LGE’s Construction | Hitachi’s Construction |
|--|--|
| “A display device other than a cathode-ray tube (CRT), having a flat front including liquid crystal display (LCD) and plasma flat panel display technology.” | “An electronic display with a package thickness that is a small fraction of the display’s height or length.” |

The ordinary and plain meaning of the “flat panel display” language certainly denotes what it says – a display that is flat. LGE’s proposed construction comports with that plain meaning and how one skilled in the art at the time of the invention would have construed this element. The specification repeatedly describes the term “flat panel display” as including liquid crystal (LCD), electroluminescent, gas plasma, FED, and/or other flat panel types. *See, e.g.*, Col. 3:3-8; Col. 7:2-10; Col. 7:36-40; Col. 12:23-31. These are all well understood in the art as being flat displays – LCDs and Plasma display are particularly popular now.

The Dictionary of Computing, (4th ed. 1996) (Exhibit 5) defines “flat panel display” as:

“a type of display device where the depth is much less than a conventional cathode-ray tube for the same image size. Various flat-panel technologies [include] LCDs and plasma panels.”

This definition supports the construction that a “flat panel display” as claimed would be something other than a CRT by drawing a distinction between the depth of a flat panel display and the depth of a “conventional cathode-ray tube.” *See id.* Moreover, the definition provides examples of flat panel displays, such as “LCDs and plasma panels,” both of which are also recited in the specification of the ’096 patent as types of display devices that could be used for the claimed “flat panel display.” *See id.*; *see also, e.g.*, Col. 3:3-8;

The import of the ’096 patent is a system for use in flat panel displays. Indeed, from the beginning of the specification, this patent makes the point immediately clear:

The invention relates ***generally to flat panel display*** control systems, and ***more specifically to electronic control systems for*** accepting video signals of numerous formats and types, and for displaying such video signals on a wide variety of ***flat panel displays***.

Col. 1:8-12.

Indeed, the phrase “flat panel display” appears 82 times in the ’096 patent, *see* ’096 Patent *passim*, while the phrase “cathode-ray tube” or the acronym “CRT” appears only once—in connection with a description of a prior art patent, *see* Col. 1:40-42. The invention of the ’096 patent is for use with flat panel displays, not CRTs. A contrary conclusion makes no sense. For example, as explained in previous sections, one of the goals of the ’096 patent (and asserted claim 21) is to permit the control of the “orientation of a video image presented on a flat panel display.” Col. 31:59-60. Such control of the orientation of the video image is needed to solve problems unique to flat panel displays, such as LCDs. In particular, the specification of the ’096 patent explains “the video image will be displayed upside down on the display screen. This form

of display is particularly useful with LCD displays that have a vertical viewing angle that is opposite to that of the viewing angle of user.” Col. 8:67 – 9:3.

Moreover, the use of a flat panel display rather than a CRT within the system of the '096 patent is mandated by many of the goals of the invention. For example, the '096 patent acknowledges that “the use of flat panel displays is well known.” Col. 1:15-17. The background of the invention section goes on to describe numerous patents that disclose flat panel displays being used for a variety of applications. *See* Col. 1:17- 2:3. The background section then transitions into a discussion of the invention, which provides for the use of a flat panel display in various new ways, including, for example, to upsize, downsize, position, and orient images on a flat panel display. *See* Col. 2:4-25.

6. Disputed Claim Term #6: “column replicate control signal” and “row replicate control signal”

| | LGE’s Construction | Hitachi’s Construction |
|-----------------------------------|--|--|
| “column replicate control signal” | “Signal that controls the number of times a particular column address identified at least in part by a column start control signal is read out of the frame buffer in order to control the size of video image on a display screen.” | “An electronic signal that repeats an entire column of pixels in the image.” |
| “row replicate control signal” | “Signal that controls the number of times a particular row address identified at least in part by a row start control signal is read out of the frame buffer in order to control the size of video image on a display screen.” | “An electronic signal that repeats an entire row of pixels in the image.” |

LGE’s proposed construction for these terms follow the way the invention is described in the specification. At bottom, the dispute between the parties surrounds the nature of the claimed replicate signals and the corresponding description in the patent. Contrary to Defendants’ assertion, the column or row of *pixels* in the image is not repeated, but rather, a particular column and row *address* is replicated.

The specification describes that frame buffer output control unit 42 is programmed to access frame buffers 20, 24, and 25—in which a video image is stored—at a particular start column and start row memory address. Col. 22:38-49. In the case where no up-sizing or down-sizing is to be performed prior to presenting the video image on a flat panel display, the frame buffer output control unit 42 continues reading the frame buffers according to the count up/down value. *See id.* For example, with respect to column memory addresses, if no size change is to be made, the frame buffer output control unit 42 will read the columns out of the frame buffer starting with the column start value and increasing or decreasing according to the count up/down value. *See id.* The same analysis applies with respect to row memory addresses. *See id.*

However, the size of the video image to be displayed on the flat panel display may be changed by using horizontal and vertical replication. Col. 18:36-41. The concept of replication is shown in Figure 8, which is a logic schematic diagram of image size/position control unit 39.

The inputs to Figure 8 (*i.e.*, image size/position control unit 39) include an image column start value 203, an image row start value 214, a column count up/down value 204 and a row count up/down value, a column replicate value 209 and a row replicate value 216. Col. 21:59 - Col. 23:23. The column and row replicate values are used to re-size a video image. Col. 9:16-20. For example, and in general, “in order to stretch or zoom an image horizontally, the [frame buffer output] control unit 42 will repeat a column address as often as required to achieve the desired horizontal stretching. In the case of vertical stretching or zooming, a row address is repeated in like manner.” *Id.*

Referring to Figure 8, in a simple example of resizing a video image horizontally, a primary column address is determined based on the image column start value on line 203 and a clock on line 218. The primary column address is applied to one input of the adder/subtractor

205, and the column replicate value is applied to the second data input of the adder/subtractor 205. Col. 22:49-52. The replicate value then is added or subtracted from the primary column address as determined by the sign of the replicate value. Col. 22:53-54. The resulting output of the adder/subtractor 205 is a column address which is applied to the frame buffer output control unit 42. Col. 22:55-57.

As such, the column replicate value 209 represents a number of times a particular column address is read out of the frame buffer and the row replicate value 216 represents a number of times a particular row address is readout of the frame buffer. Col. 21:59 – 23:23. The number of times a particular column or row address is read out of the frame buffer controls the size of video image on a display screen. Col. 9:12-20. The column replicate value 209 and the row replicate value 216 are provided to image size/position control unit 39 from microprocessor 36 via a column replicate control signal and a row replicate control signal. Col. 22:30-37.

7. Disputed Claim Term #7: “sizing said video image”

| LGE’s Construction | Hitachi’s Construction |
|--|---|
| “Controlling the size of a video image on a display screen.” | “Altering the size of the existing video image that is stored in memory.” |

The dispute here centers on whether the size of the video image need be controlled (as we urge) or altered (as Defendants urge). Upon initialization of the system of the '096 patent, microprocessor 36 programs image size/position control unit 39 “to accommodate a 1-to-1 sized image.” Col. 14:63 – 15:2. Later, microprocessor 36 determines whether a video image to be presented is to be upsized, downsized, or unaltered. *See* Figure 5e. If a change in sizing has occurred, microprocessor 36 “reprograms the image size/position control unit 39 with new size values (horizontal and vertical replication).” Col. 18:36-41; Fig. 5e. For example, during the first iteration of the microprocessor’s processing, a video image remains unaltered (image size/position control unit 39 is set to accommodate a 1-to-1 sized video image) unless and until a

size change is to be made, at which point microprocessor 36 provides corresponding sizing information as column and row replicate control signals. *See id.* If no such sizing is to take place (*i.e.*, the video image is to remain unaltered) microprocessor 36 moves on to its next logic step and does not reprogram image size/position control unit 39, thus causing the unit 39 to remain programmed to accommodate a 1-to-1 sized video image. Col. 18:41-46; Fig. 5e. Thus, the phrase “sizing said video image” need not require an “altering” of a video image to be presented on a flat panel display. As such, Defendants’ construction fails to comport with the specification of the ’096 patent and the ordinary meaning of the phrase.

8. Disputed Claim Term # 8: “while maintaining a video signal resolution”

| LGE’s Construction | Hitachi’s Construction |
|---|--|
| “Without requiring a change in the video signal resolution received from the video source.” | “Without losing pixel data from said video signal from said video source.” |

One of the principal features of the ’096 patent is to receive a video image of diverse video formats and resolutions and be able to accept, process, and display the video image on a flat panel display while maintaining a resolution of the video signal (despite any adjustments in size, position, and/or orientation). And this can be accomplished without requiring the video source to provide a video signal having the features, such as, for example, “a video signal resolution” dependant on how the video image is to be presented on the flat panel display and/or the type of flat panel display being used. *See* Col. 2:28 - Col. 3:8; Col. 3:24-26 (“video signals are accepted at the incoming video rate and asynchronously output at the flat panel display rate”). In other words, the system disclosed by the ’096 patent performs the work of presenting a video image on a flat panel display in a manner compatible with hardware (*e.g.*, flat panel display) constraints and user preferences (*e.g.*, up-sizing, down-sizing, rotating, shifting side-to-side) while accepting the video signal exactly as it is provided by the video source and without

requiring any work on the part of the video source to adjust for the ultimate outcome of the presentation of the video image. LGE's construction tracks the plain language of the claims and is consistent with this feature of the patent.

9. Disputed Claim Term # 9: "generating first control signals for reading said video image in said memory system"

| LGE's Construction | Hitachi's Construction |
|--|--|
| "Generating first control signals that are used to read the video image from the memory system." | "Creating column count up/down signals and row count up/down signals." |

The dispute here presents a clear choice for the Court – rewrite the claim language as urged by defendants or simply construe the claims in accordance with the ordinary language, which is consistent with the specification.

It is clear that the microprocessor 36 generates first control signals for reading a video image out of memory (both parties agree on that). The first control signals generated by microprocessor 36 are sent to image size/position control unit 39 on line 38 to provide multiple types of information, including (a) column and row count up/down control signals to image size/position control unit 39, Col. 22:39-41; Fig. 8, and (b) information about the particular flat panel display being used in the system. Col. 7:40-45. Defendants seek to improperly limit the first control signals to the column and row count up/down control signals, to the exclusion of the other types of information provided to image size/position control unit 39 by microprocessor 36 via the first control signals. There is no support for such a narrow approach within the claims themselves or the specification.

10. Disputed Claim Term # 10: "image size/position control means in electrical communication with said timing control means and responsive to said column start, row start, column replicate, and row replicate control signals and said first control signals"

| LGE's Construction | Hitachi's Construction |
|--|---|
| This limitation may be read as a "means-plus-function" clause in accordance with 35 U.S.C. § 112(6). | This limitation is a means-plus-function claim limitation under Section 112, ¶ 6. |
| The function associated with this means plus function | Recited Functions: (Construction of Terms Used in |

| | |
|---|--|
| <p>element is: generating output column address and output row address control signals.</p> <p>The structure disclosed in the specification for performing this function(s) is/are the circuitry described as the image size/position control unit 39 of Figs. 1 and 8 and any equivalents thereof.</p> | <p>Recited Functions are set forth in the below rows. The fact that other language present in this paragraph of claim 21 not included as a recited “function” of the means-plus-function clause does not mean that language is not limiting; Defendants contend that additional language is also limiting.):</p> <p>(1) generating the output column address control signals (2) generating output row address control signals (3) generating a pixel clock signal</p> <p>Corresponding Structure:</p> <p>(1) image size/position control unit 39 (including all the structure shown in Figure 8) (2) image size/position control unit 39 (including all the structure shown in Figure 8) (3) No corresponding structure that performs this function and satisfies the remainder of the limitation.</p> |
|---|--|

Both parties agree that this claim element should be construed in accordance with 35 U.S.C. § 112, ¶ 6. The dispute here revolves around whether the last clause of this element – “generating a pixel clock signal” – is a signal that is received or generated by the claimed “image size/position control means.” The Defendants simply seek to bootstrap the latter claim construction into an argument that the claim is somehow not supported by the specification. But no matter how the Court reads the language, it is supported by the specification and the corresponding analysis under section 112 is clear.

As shown in Figure 8 (reproduced above), image size/position control unit 39 receives an image column start value 203, an image row start value 214, a column count up/down value 204 and a row count up/down value, a column replicate value 209 and a row replicate value 216. Fig. 8; Col. 21:59 – 23:23. Based on these inputs, image size/position control unit 39 generates output column address and output row address control signals that are used to access a video image stored in memory. *See id.*

It is clear from the specification that image size/position control unit 39 as disclosed in Figure 8 does not generate a pixel clock signal, but rather receives a pixel clock signal, which is used to perform its proper functions of generating output column address control signals and

output row address control signals. Col. 21:59-64; Fig. 8. For example, the specification indicates that “a flat panel pixel clock from the flat panel timing generator 29 [which is itself generated from pixel clock generator 28] is supplied on line 41 to one input of an AND gate 200” within image size/position control unit 39. *See id.* As such, the “image size/position control means” of claim 21 should be read to include the functions of generating output column and row address control signals *in response to* a pixel clock signal to access the memory system as we urge. Claim 21. This construction comports with the specification of the '096 patent and the ordinary meaning of the claim element by a person having ordinary skill in the art.

Alternatively, if the generation of a pixel clock signal is a function as urged by defendants, then it is completely clear what structure in the specification corresponds to that function – “pixel clock generator 28”. Under this construct, the function would be as urged by Defendants, and the corresponding structure would be the image size/position control unit 39 of Figs. 1 and 8 and the pixel clock generator of Fig. 1, and any equivalents thereof. Either way, the claim language is completely supported, and Defendants’ feigned assertion to the contrary should be rejected.

11. Disputed Claim Term # 11: “output column address control signals” and “output row address control signals”

| | LGE’s Construction | Hitachi’s Construction |
|--|---|---|
| “output column address control signal” | “Signals that control the column address read out of memory.” | “Column address signals for outputting video data from memory.” |
| “output row address control signal” | “Signals that control the row address read out of memory.” | “Row address signals for outputting video data from memory.” |

LGE’s proposed constructions flow from the plain language and the description provided in the specification. For example, and as described in detail above, “image size/position control unit 39 provides image positioning, image size, and image orientation by modifying the memory addresses that are presented to the frame buffers 20, 24, and 25.” Col. 22:25-28. Image

size/position control unit 39 does so by generating an output column address control signal and an output row address control signal. Col. 22:54-57, 65-67; Fig. 8. The output column and row address control signals are supplied to frame buffer output control unit 42, which uses the control signals to supply memory address locations at the inputs of frame buffers 20, 24, and 25. *See id.*; Col. 8:50-57. As such, the output column and row address signals actually **control** the column and row address read out of memory, rather than merely provide for “outputting video data from memory” as Defendants contend.

12. Disputed Claim Term #12: “pixel clock signal”

| LGE’s Construction | Hitachi’s Construction |
|---|--|
| “A clock signal used to synchronize pixel operations for driving the flat panel display.” | “A clock signal used to synchronize all pixel operations for processing video data.” |

One point of contention here is whether the “pixel clock signal” as claimed synchronize “pixel operations for driving the flat panel display,” as LGE contends, or “all pixel operations for processing video data” as Defendants contend. The Defendants’ proposed construction for this term again ignores the plain language of claim 21 and instead improperly attempts to import the specification into the construction by requiring the phrase “all pixel operations” as part of the construction. On the other hand, LGE’s proposed construction recognizes that the “pixel clock signal” of claim 21 is an input used to generate output column address and output row address signals.¹² As described above in detail, the claimed “pixel clock signal,” as well as other signals, are used to generate output column and row address signals to control the column and row addresses read out of memory. Col. 21:59-64; Fig. 8.

¹² Reading unwarranted limitations from the specification into the claims has long been criticized by the Federal Circuit. *See, e.g., Arlington Indus.*, 345 F.3d at 1327 (noting that courts must take extreme care when ascertaining the scope of the claims, lest they simultaneously import claim limitations that were unintended by the inventors); *see also E.I. du Pont de Nemours*, 849 F.2d at 1433 (finding it improper to impose “a limitation read into a claim from the specification wholly apart from any need to interpret what the patentee meant by particular words or phrases in the claim”).

13. Disputed Claim Term # 13: “frame buffer output control means in electrical communication with said timing control means, said memory system, said image size/position control means, and said flat panel display, and responsive to said pixel clock signal for reading said video image from said memory system”

| LGE’s Construction | Hitachi’s Construction |
|--|---|
| <p>This limitation may be read as a “means-plus-function” clause in accordance with 35 U.S.C. § 112(6) comprising the following function(s): reading a video image from the memory system. In the specification, of the ’096 patent, structure(s) performing the function(s) reciting in this claim is/are the circuitry described as the frame buffer output control unit 42 of Figs. 1 and 17 and Output FIFO 356 (Fig. 14) and any equivalents thereof.</p> | <p>This limitation is a means-plus-function claim limitation under Section 112, ¶ 6.</p> <p>Recited Functions: (Construction of Terms Used in Recited Functions are set forth in the below rows. The fact that other language present in this paragraph of claim 21 not included as a recited “function” of the means-plus-function clause does not mean that language is not limiting; Defendants contend that additional language is also limiting.):</p> <p>(1) reading said video image from said memory system</p> <p>Corresponding Structure:</p> <p>(1) frame buffer output control unit 42 (including the structure shown in Figure 17); gate 358, and Output FIFO 356.</p> |

Once again the parties agree that this claim element is governed by 35 U.S.C. § 112, ¶ 6.

The function provided for in the claim language comprises: reading a video image from the memory system. In the specification, the structure performing the function recited in this claim is the circuitry described as the frame buffer output control unit 42 of Figs. 1 and 17 and Output FIFO 356 and any equivalents thereof. *See, e.g.*, Figs. 1, 14, 17; Col. 9:12-24; Col. 25:40 – 26:25; Col. 27:45-63.

As described above, frame buffer output control unit 42 receives output column and row address control signals from image size/position control unit 39. Col. 22:54-57, 65-67; Fig. 8. Frame buffer output control unit 42 uses the control signals to supply memory address locations at the inputs of frame buffers 20, 24, and 25. *See id.*; Col. 8:50-57. However, frame buffer output control unit 42 is not itself in direct communication with the flat panel display, as required by the “frame buffer output control means” element of claim 21. Frame buffer output control

unit 42 is connected to frame buffers 20, 24, and 25, which includes Output FIFO 356 which is directly connected to plug-in flat panel interface module 30. *See* Figs. 1 and 14.

Frame buffer output control unit 42 uses the outputs of image size/position control unit 42 to control the column and row addresses read out of memory by providing address information to frame buffers 20, 24, and 25. Col. 26:57-58; Fig. 15. The address information is received by frame buffers 20, 24, and 25 as row/column read address on line 362. *See id.*; Fig. 14. The row/column read address information on line 362 through gate 358 to memory array 355. *See id.* Based on the row/column read address information provided on line 362 from frame buffer output control unit 42, gate 358 controls the addresses of the memory locations from which data (*e.g.*, a stored video image) is to be read. Fig. 14; Col. 26:13-16. Memory array 355 is the portion of the frame buffers that actually includes the stored information, *i.e.*, the video image. Fig. 14; Col. 26:16-22. The read information is then provided to output FIFO 356 and sent to plug-in flat panel interface module 30 for presentation of the video image on a flat panel display. Fig. 14; Col. 26:22-25. Thus, the frame buffer output control unit 42, in connection with output FIFO 356 are in electrical communication with the flat panel display, among other elements, and reads a video image from the memory system, as claimed.

14. Disputed Claim Term # 14: “timing control means receiving said video signal from said video source at a video signal data rate for... generating first control signals for reading said video image in said memory system”

| LGE’S Construction | Hitachi’s Construction |
|---|---|
| <p>This limitation is a means-plus-function claim limitation under Section 112, ¶ 6.</p> <p>Recited Functions:</p> <ul style="list-style-type: none"> ? generating therefrom enable, vertical synchronization, horizontal synchronization, and first clock signals for driving said flat panel display; ? generating column start, row start, column replicate, and row replicate control signals for sizing said video image while maintaining a video signal resolution; and | <p>This limitation is a means-plus-function claim limitation under Section 112, ¶ 6.</p> <p>Recited Functions: (Construction of Terms Used in Recited Functions are set forth in the below rows. The fact that other language present in this paragraph of claim 21 not included as a recited “function” of the means-plus-function clause does not mean that language is not limiting; Defendants contend that additional language is also limiting.):</p> <p>(1) generating from the video signal enable, vertical</p> |

| | |
|---|---|
| <p>? generating first control signals for reading said video image in said memory system.</p> <p>Corresponding Structure: Microprocessor 36, sync separator 14, and flat panel timing generator 29 (of Figures 1 and 7, including equivalents thereof)</p> | <p>synchronization, horizontal synchronization, and first clock signals for driving said flat panel display (2) generating column start, row start, column replicate, and row replicate control signals for sizing said video image while maintaining a video signal resolution (3) generating first control signals for reading said video image in said memory system</p> <p>Corresponding Structure: (1) Flat panel timing generator 29 (including all the structure shown in Figure 7) and sync separator 14 (2) Microprocessor 36 (3) Microprocessor 36</p> |
|---|---|

In an attempt to reduce the number of disputed terms, LGE has proposed the construction above for the “timing control means...for generating” limitation. If the parties cannot agree, the Court should adopt LGE’s construction because it is superior. The Defendants impermissibly attempt to apportion the above-identified structures selectively to the recited functions contrary to the teachings of the specification. For example, both the schematic of Figure 1 and the description of the invention (*see, e.g.*, Col. 11:40-49) indicate the structures above are interrelated and cannot be separated in the manner attempted by the Defendants in their construction; such disclosure supports LGE’s construction of the “timing control means” term.

CONCLUSION

For at least the foregoing reasons, the Court should adopt LGE’s constructions in their entirety.

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Respectfully submitted,

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CERTIFICATE OF SERVICE

I hereby certify that a true and correct copy of the foregoing document was served by e-mail via the Eastern District of Texas ECF System to all counsel of record on May 9, 2008.

/s/ James A Fussell
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